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M E M O R A N D U M

TO: John Mitnik, Chief, Engineering and Construction Bureau
Paul Linton, Administrator, Water Control Operations Section

FROM: SFWMD Staff Environmental Advisory Team

DATE: June 30, 2015

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

After a period of rapid stage increase with rainfall in mid-June, stages in Lakes East Toho, Toho, and Kissimmee-Cypress-Hatchineha (KCH) have been rising slowly. Discharge through S-65 has been maintained at ~350cfs and at S-65A at approximately the minimum discharge to the Kissimmee River of 300 cfs +/- 50 cfs. Sunday's average discharge at S-65E was 420 cfs; on Tuesday morning discharge is near ~400 cfs. Kissimmee River dissolved oxygen concentration averaged 8.09 mg/L over the past week and 7.85 mg/L on Sunday. Kissimmee River mean floodplain depth is 0.19 feet.

Lake Okeechobee is at 12.20 feet NGVD and is in the Beneficial Use Operational Sub-band and Lake stage is just below optimal for this time of year. Wading bird foraging habitat has become mostly too dry and where water depths are good, primarily in the Moonshine Bay area, there is a lot of cattail, which is not good wading bird foraging habitat. No new snail kite nests were found during the most recent survey and kite presence on the Lake is reduced since the last survey. Satellite imagery indicates low to moderately high bloom conditions in the northern, western and southern nearshore regions, with low to moderate bloom conditions extending into the pelagic zone, except for the east side of the Lake, where no blooms were recorded.

Flows through S-80 averaged 0 cfs and averaged 858 cfs at S-79. Salinities remained stable in the St. Lucie estuary and were in the good range for adult oysters. Salinities increased slightly in the upper Caloosahatchee estuary and continued to be in the good range for adult oysters at Cape Coral and Shell Point and in the fair range at Sanibel. Salinities were also in the good range for tape grass in the upper-Caloosahatchee estuary, and are forecast to remain so over the next two weeks, even with 0 cfs flow through S-79.

Rainfall was moderate across the Water Conservation Areas and most of Everglades National Park (ENP) causing water levels to decrease last week. Water levels remain below ground in northeastern WCA-3A and northeastern ENP. Extra water continues to be needed in far northeastern WCA-3A (near the southeastern corner of STA-3/4) to protect the peat soils. The 30-day moving average salinities at the Florida Bay Minimum Flows and Levels sentinel site increased to 27.7 psu and daily average salinities in the nearshore areas of Florida Bay remain hypersaline at 40 to 50 psu. A pair of Cape Sable Seaside Sparrows in subpopulation D (southernmost area) are on their third nest this season.

Weather Conditions and Forecast

Below average rains likely through the remainder of the week. Today looks to be the last day of dominant westerly steering winds for a while. Moisture has decreased and models do not produce much rain, so expect a decrease in coverage and intensity of storms with a general focus over eastern and southern

areas this afternoon. Tomorrow should see the least amount of activity as mid-level high pressure sits over the peninsula before shifting eastward by Thursday. An upper low spins off within an upper trough over the eastern Gulf of Mexico Wednesday night and Thursday. Look for storm coverage to correspondingly increase then with a focus west through north of the Lake.

KISSIMMEE BASIN

Kissimmee Basin Rainfall

The Upper Kissimmee Basin received 2.65 inches of rainfall in the past week and the Lower Basin received 1.13 inches (SFWMD Daily Rainfall Report 6/30/2015).

Upper Kissimmee Basin

Stages and departures in the Kissimmee Chain of Lakes (KCOL) are shown in Table1.

Table 1. Departures from KCOL flood regulation (F) or temporary schedules (T, A, or S) (feet NGVD). Discharge and stage data are provisional real-time data from SFWMD OASyS DualTrend; reported values are averages through midnight of the Sunday prior to the report date unless otherwise specified.

Report Date: 6/30/2015							Sunday Departure (feet)						
Water Body	Structure/Site	Discharge (cfs), week's average**	Stage Monitoring Site***	Lake Stage (feet)	Schedule*	Regulation (R) or Target (S or T) Stage (feet)	6/28/15	6/21/15	6/14/15	6/7/15	5/31/15	5/24/15	5/17/15
Lakes Hart and Mary Jane	S62	13	LKMJ	60.1	R	60.0	0.1	-0.1	-0.3	-0.5	0.0	-0.1	-0.1
Lakes Myrtle, Preston, and Joel	S57	16	S57	60.9	R	61.0	-0.1	-0.1	-0.5	-0.8	0.0	-0.1	0.0
Alligator Chain	S60	114	ALLI	63.3	R	63.3	0.0	-0.1	-0.5	-1.1	0.2	0.0	0.0
Lake Gentry	S63	123	LKGT	61.0	R	61.0	0.0	-0.6	-1.1	-1.5	0.1	-0.1	0.0
East Lake Toho	S59	17	TOHOE	55.6	R	56.5	-0.9	-1.2	-1.2	-1.4	0.2	-0.1	-0.2
Lake Toho	S61	108	TOHOW	52.8	R	53.5	-0.7	-1.0	-1.0	-1.4	0.2	-0.1	-0.2
Lakes Kissimmee, Cypress, and Hatchineha	S65	352	LKISSP, KUB011, LKISSB	49.2	R	51.0	-1.8	-1.9	-1.9	-2.1	0.0	-0.2	-0.5

* T = temporary schedule, R = USACE flood control schedule, S = temporary snail kite schedule, A = projected ascension line, N/A= not applicable or data not available.

** Seven-day average of weighted daily means through Sunday midnight.

*** Names of in-lake monitoring sites and structures used to determine lake stage; if more than one site is listed, an average is reported.

DATA ARE PROVISIONAL

Lower Kissimmee Basin

Discharges and stages at Lower Basin structures are shown in Table 2. SFWDAT depth maps for the Phase I restoration area are shown in Figure 11. Kissimmee River floodplain stages at selected stations are shown in Figure 12.

Table 2. Mean weekly discharge at S-65x structures, and mean weekly Phase I area river channel dissolved oxygen and floodplain mean water depth. Discharge and stage data are provisional real-time data from SFWMD OASyS DualTrend; reported values are averages through midnight of the Sunday prior to the report date unless otherwise specified.

Report Date: 6/30/2015

Metric	Location	Sunday's 1-day average	Weekly Average**								
			6/28/15	6/21/15	6/14/15	6/7/15	5/31/15	5/24/15	5/17/15	5/10/15	5/3/15
Discharge (cfs)	S-65	366	352	395	423	392	421	421	425	837	2672
Discharge (cfs)	S-65A	259	273	296	331	285	285	285	288	672	2572
Discharge (cfs)	S-65C	425	435	478	533	390	450	450	613	2101	3389
Headwater stage (feet NGVD)		33.4	33.3	33.4	33.5	33.3	33.9	33.9	34.5	35.3	35.4
Discharge (cfs)	S-65D****	473	515	588	628	454	558	558	728	2257	3669
Discharge (cfs)	S-65E	417	361	415	468	285	380	380	487	2081	3529
DO concentration (mg/L)***	Phase I river channel	7.85	8.09	7.24	5.81	6.27	6.35	6.36	5.86	4.05	2.56
Mean depth (feet)*	Phase I floodplain	0.19	N/A	0.25	0.33	0.12	0.14	0.23	0.39	0.73	1.72

* 1-day spatial average from South Florida Water Depth Assessment Tool (SFWDAT).

** Seven-day average of weighted daily means through Sunday midnight.

*** DO is the average of KRBN and PC62 through May 21, 2015; is for PC62 only for May 22-June 1; and is the average for PC62 and PC33 starting June 2..

**** S-65D discharge combines discharge at S-65D, S-65DX1, and S-65DX2

***** 1-day spatial average from field measurements in Pools A and BC

N/A Not applicable or data not available.

DATA ARE PROVISIONAL

Water Management Recommendations

Kissimmee Basin Recommendations and Operational Actions

Date	Recommendation	Purpose	Outcome	Source
6/30/2015	No new recommendations.			
6/23/2015	No new recommendations.			
6/16/2015	No new recommendations.			
6/9/2015	No new recommendations.			
6/1/2015	For S65/65A maintain 300 cfs as long as stage is above 48.5 ft. When stage approaches 50.5 ft begin transitioning to 1400 cfs using the rampup/rampdown guidelines in standing recommendation.	Allow KCH lake stage to rise	Implemented	KB Operations
5/29/2015	2015 KB Wet Season Standing Recommendations provided to Operations Control	Comprehensive wet season guidance	Implemented	KB Operations
5/26/2015	No new recommendations.			
5/19/2015	No new recommendations.			
5/12/2015	No new recommendations.			
5/5/2015	No new recommendations.			
4/7/2015	No new recommendations.			
3/31/2015	No new recommendations.			
3/24/2015	No new recommendations.			
3/17/2015	No new recommendations.			
3/9/2015	No new recommendations.			
3/4/2015	No new recommendations.			
2/23/2015	No new recommendations.			
2/17/2015	No new recommendations.			
2/10/2015	No new recommendations.			
2/3/2015	No new recommendations.			
1/27/2015	Starting today, follow a new SK recession line for KCH, which will be drawn from today's stage to regulation stage on March 1.	Snail kite recession in KCH	Implemented	

KCOL Hydrographs (through Sunday midnight)

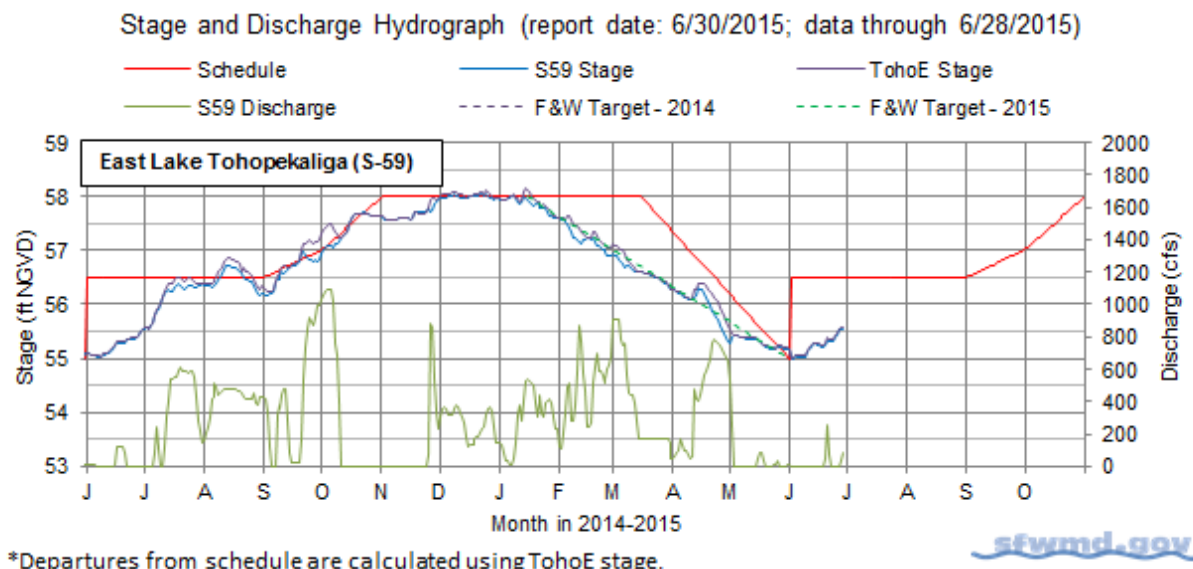


Figure 1.

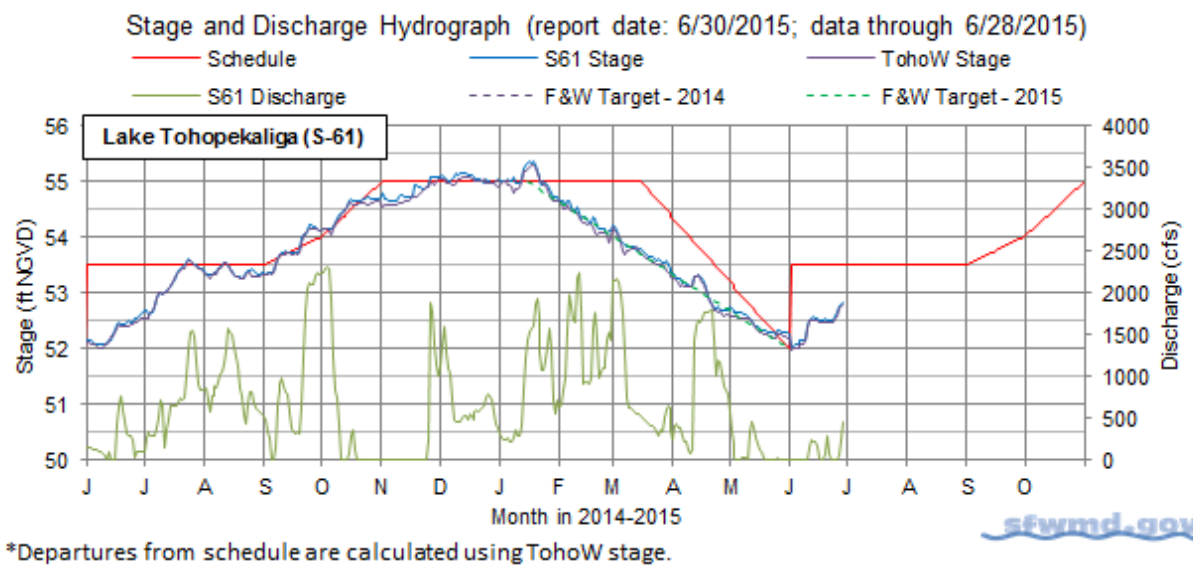


Figure 2.

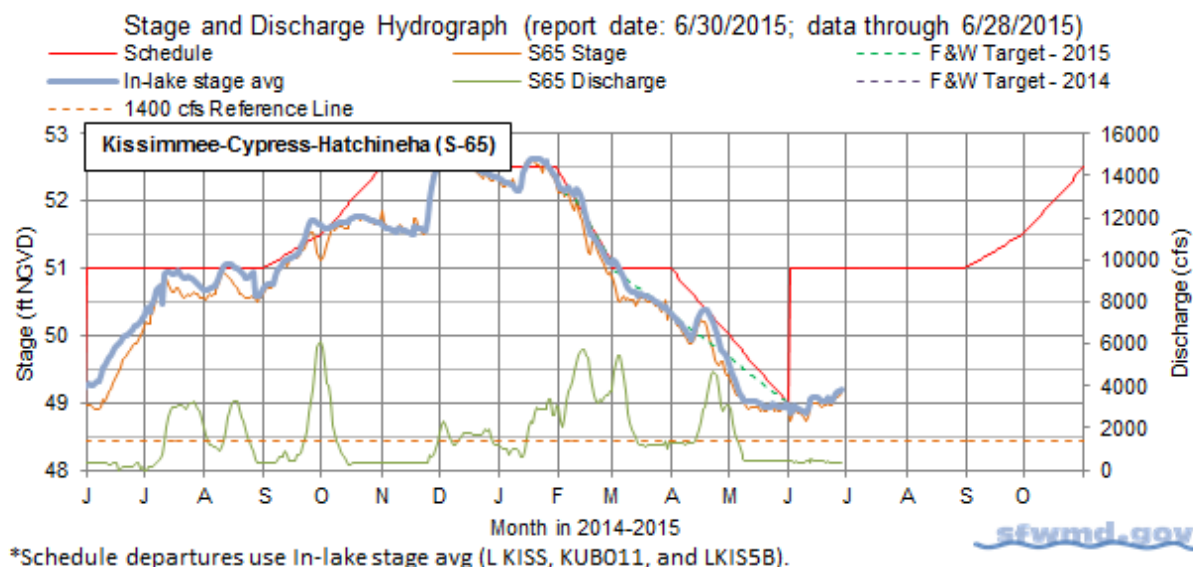


Figure 3.

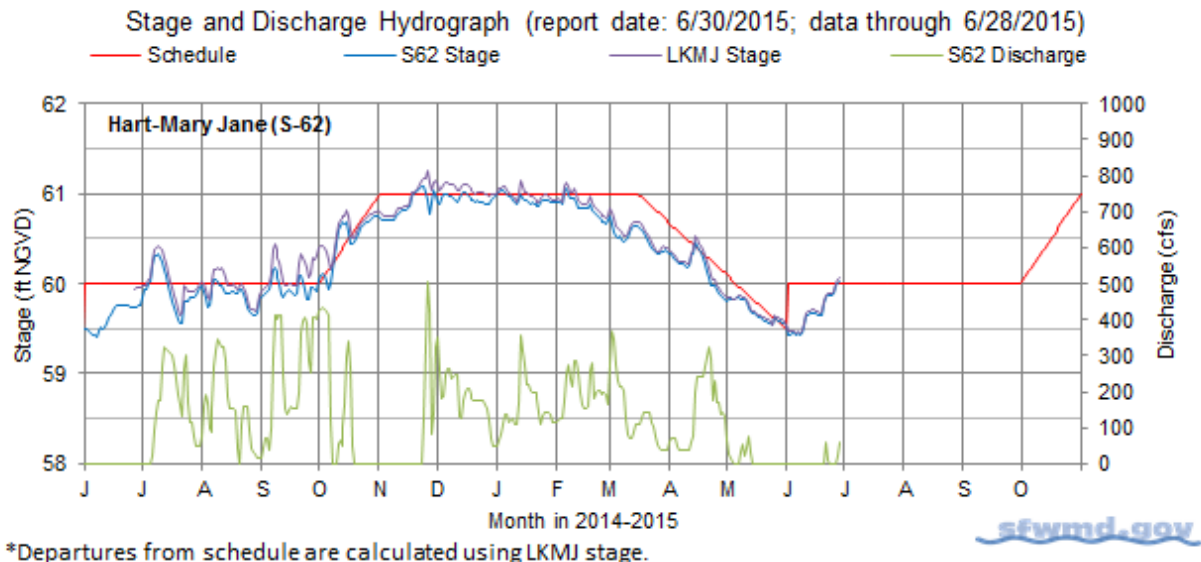


Figure 4.

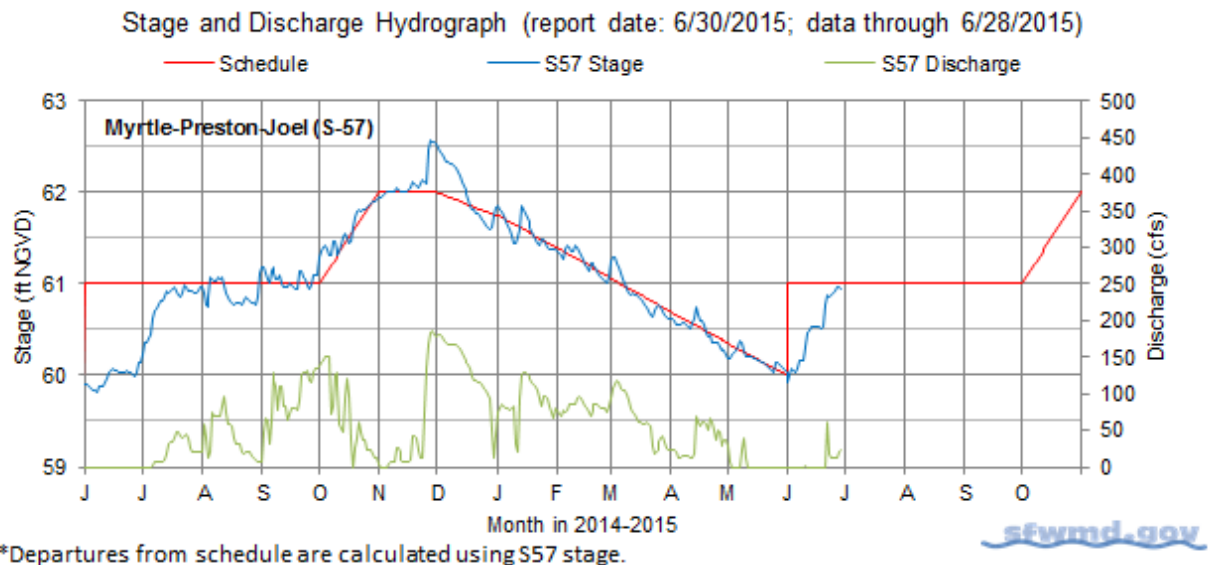


Figure 5.

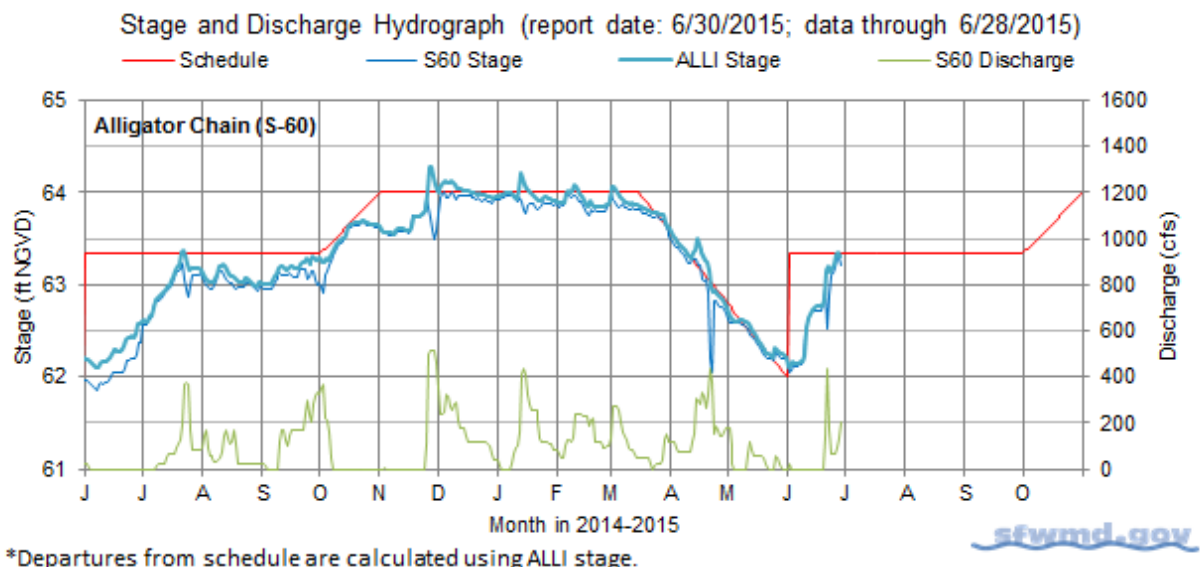


Figure 6.

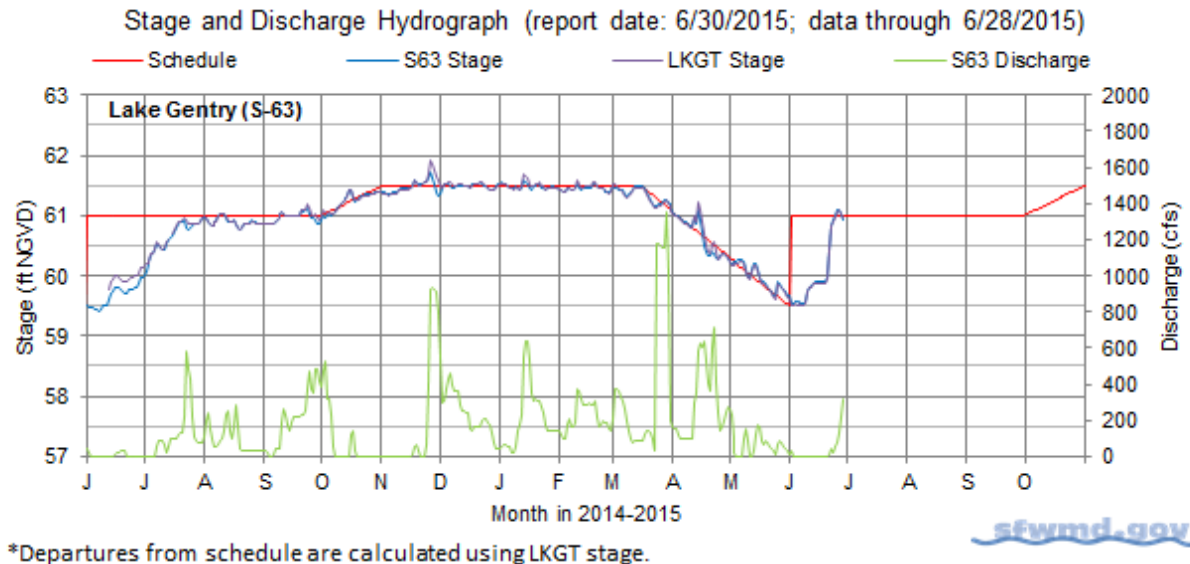


Figure 7.

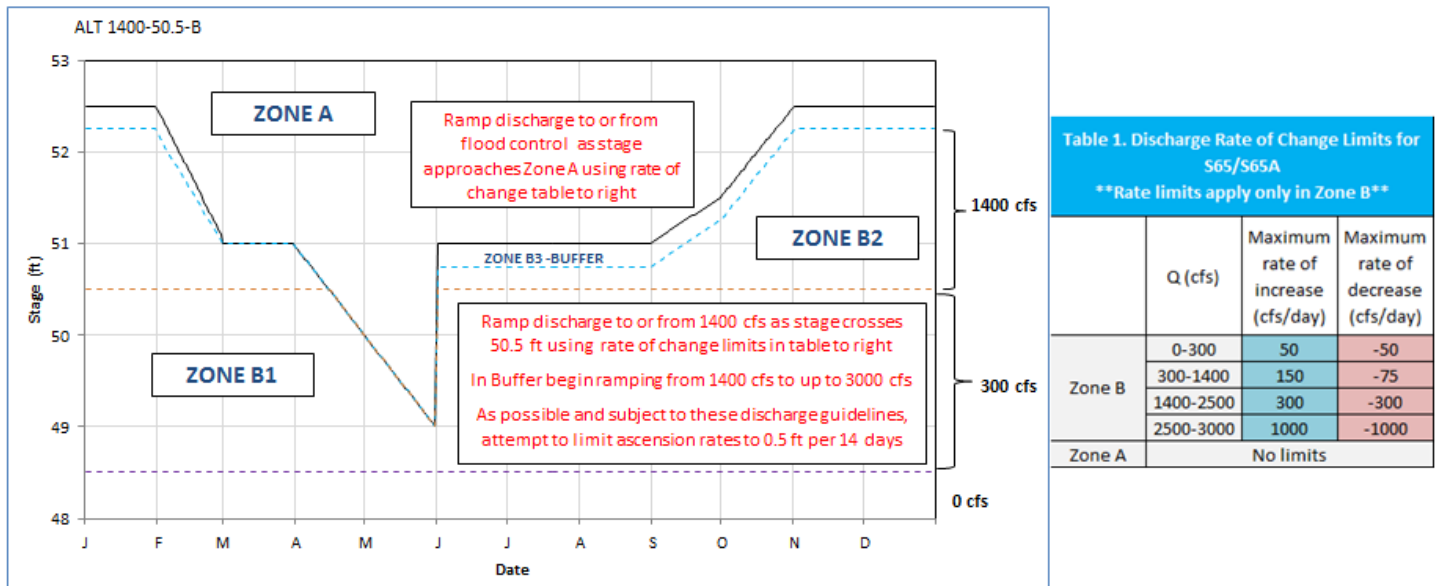


Figure 8a. Final S65 operational plan for Wet Season 2015.

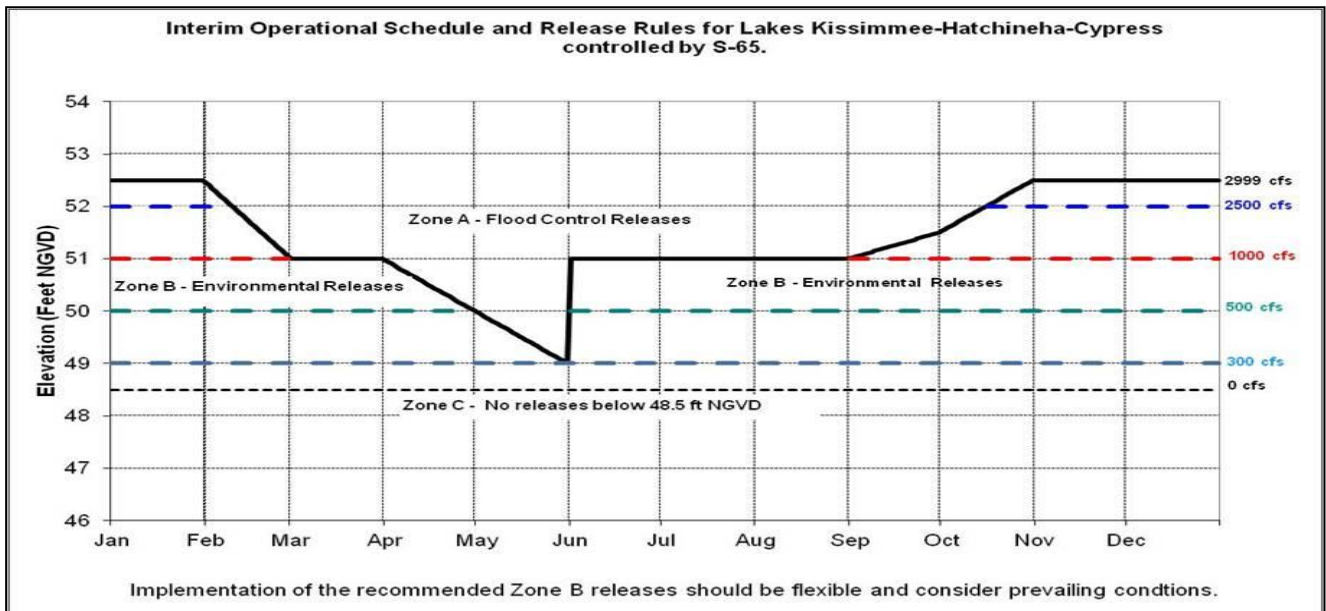
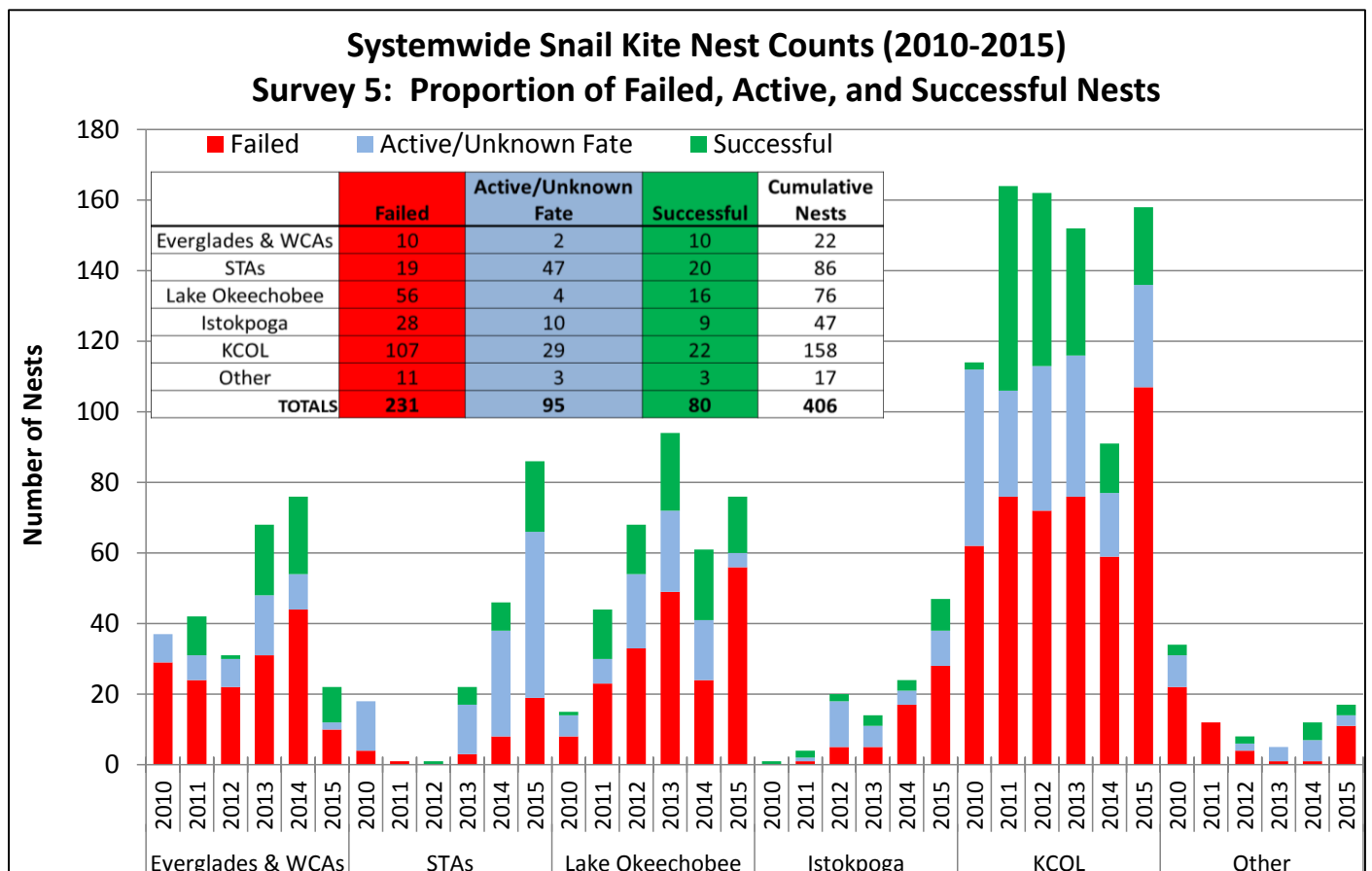


Figure 8b. Interim operations schedule for S-65. The discharge schedule shown to the right has not been used in recent years or in Wet Season 2015.



Insert 1. Regional snail kite nesting counts.

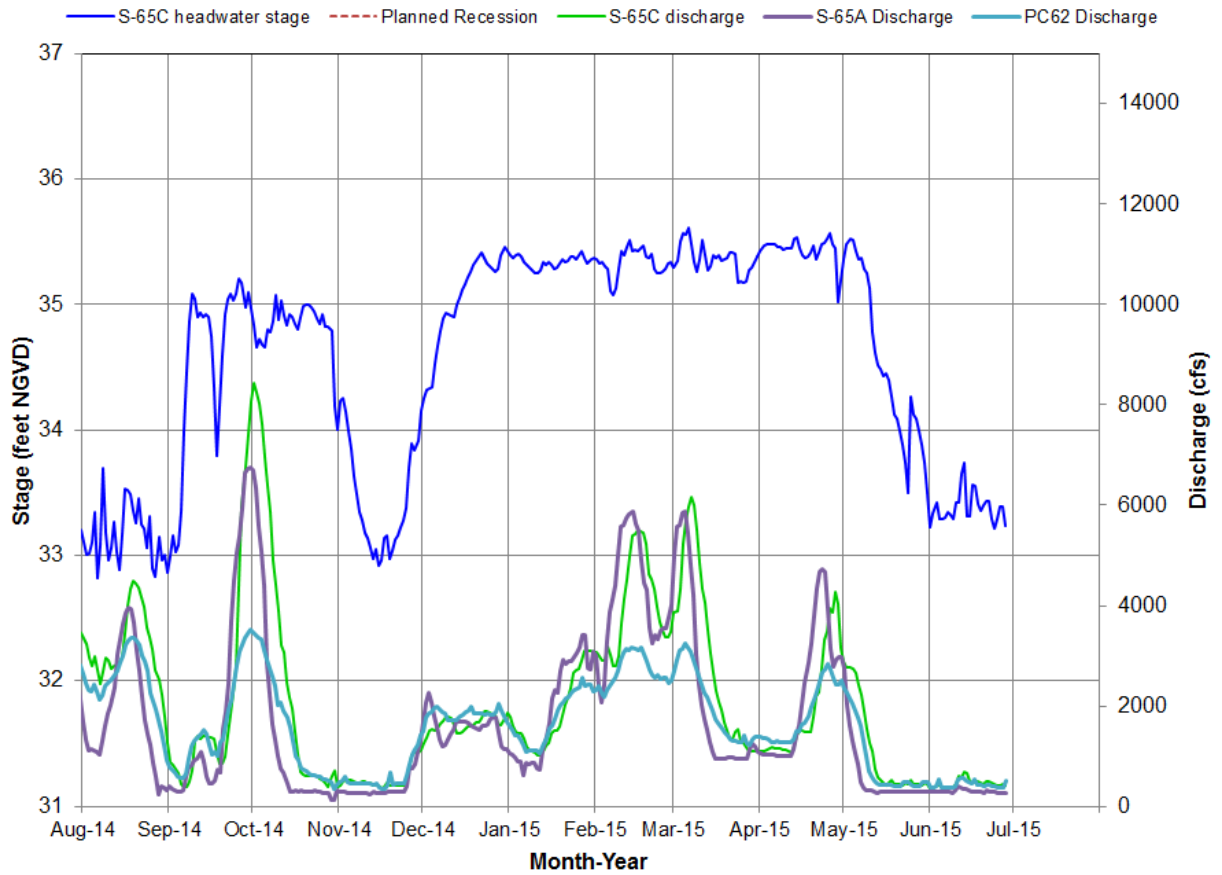


Figure 9. S-65C headwater stage in relation to discharge at S-65C, S-65A, and PC62.

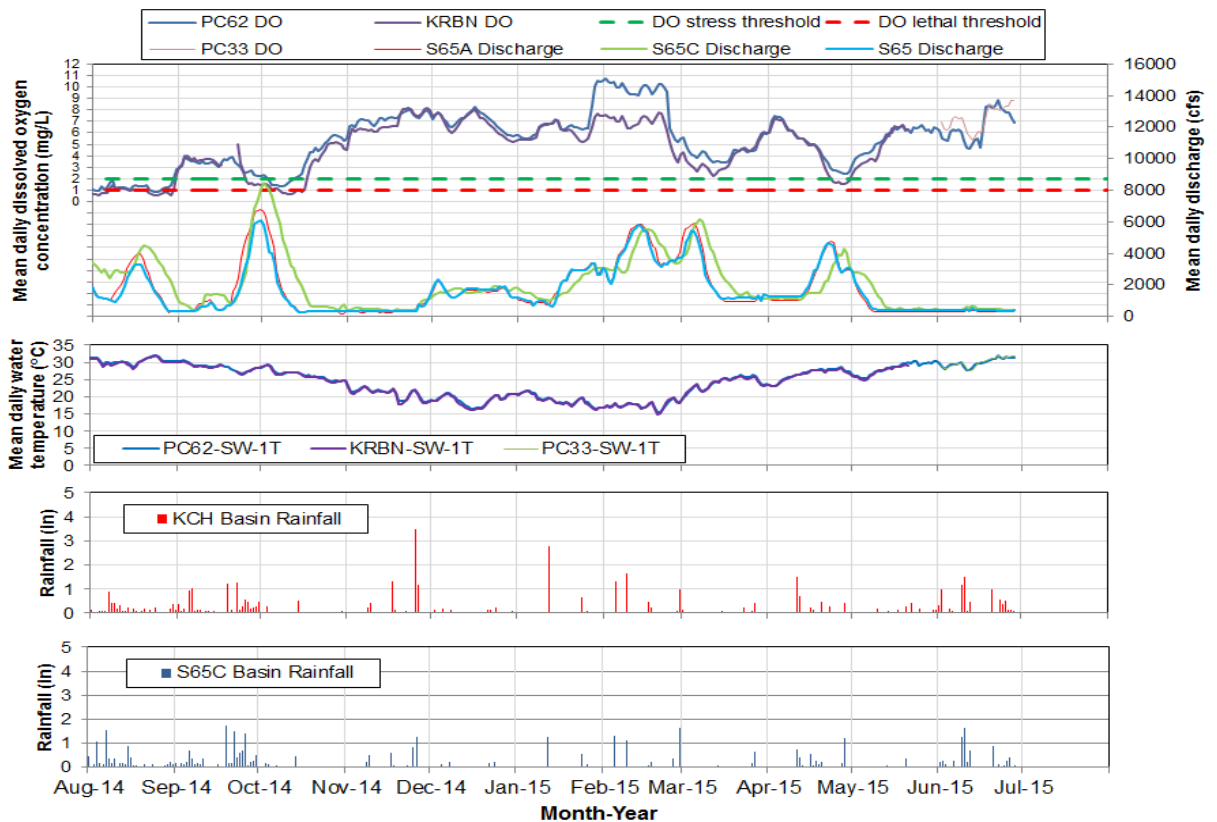
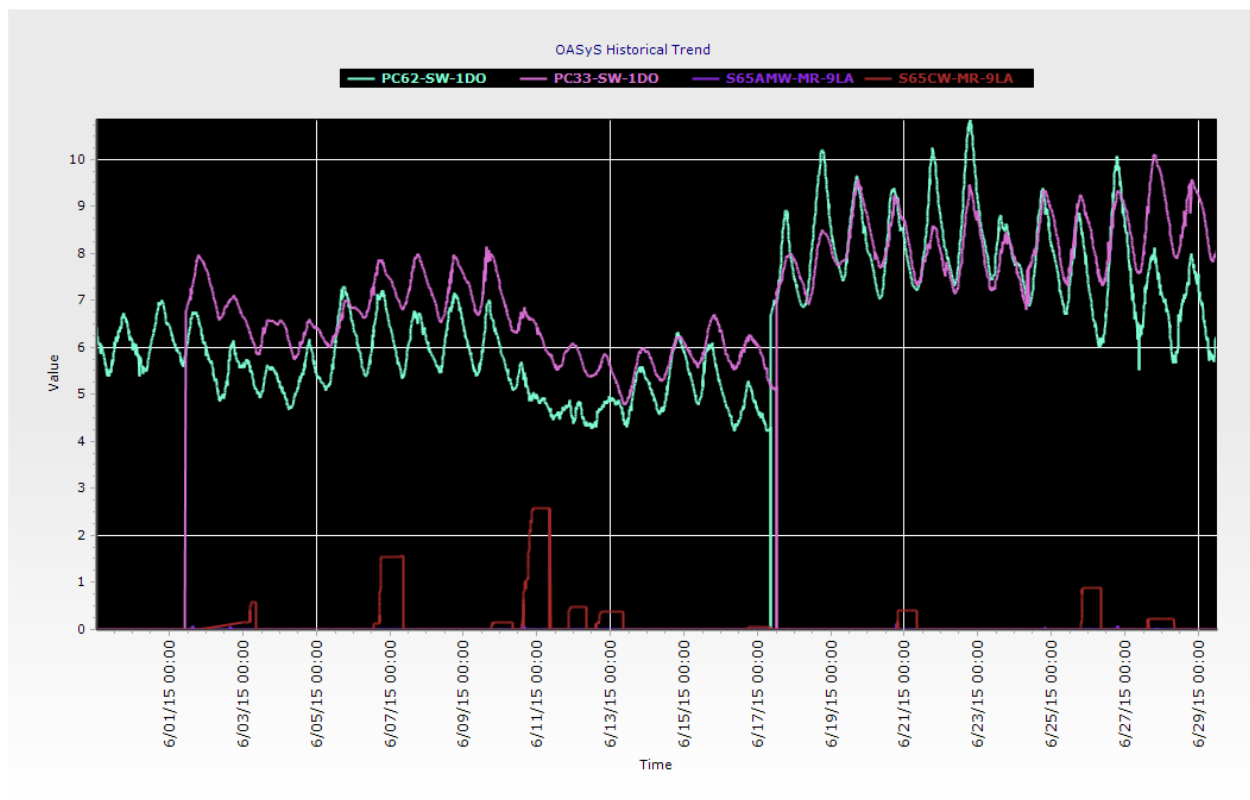


Figure 10. Mean daily DO, discharge, temperature and rainfall in the Phase I river channel.



Insert A. Phase I river channel DO (measured at 15 minute intervals) and rainfall at S65A and S65C.

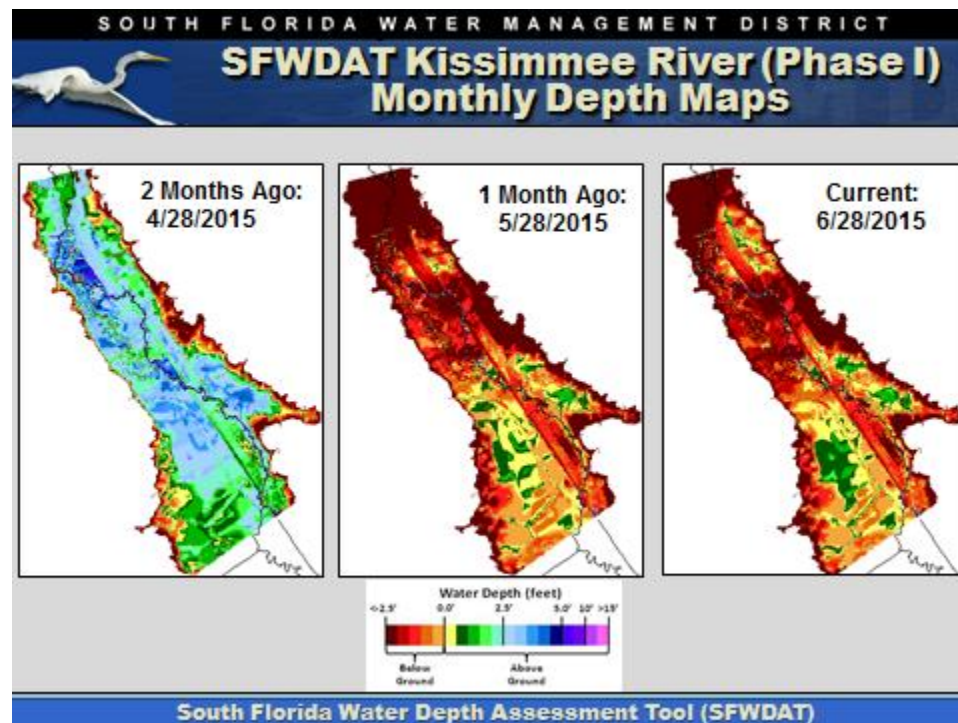


Figure 11. Phase I area floodplain water depths for this week, one month ago, and two months ago. Note that the WDAT color-coding has been modified to accommodate greater water depths; these maps are not directly comparable to Kissimmee Basin WDAT maps published prior to Jan. 16, 2012.

Kissimmee River Hydrographs

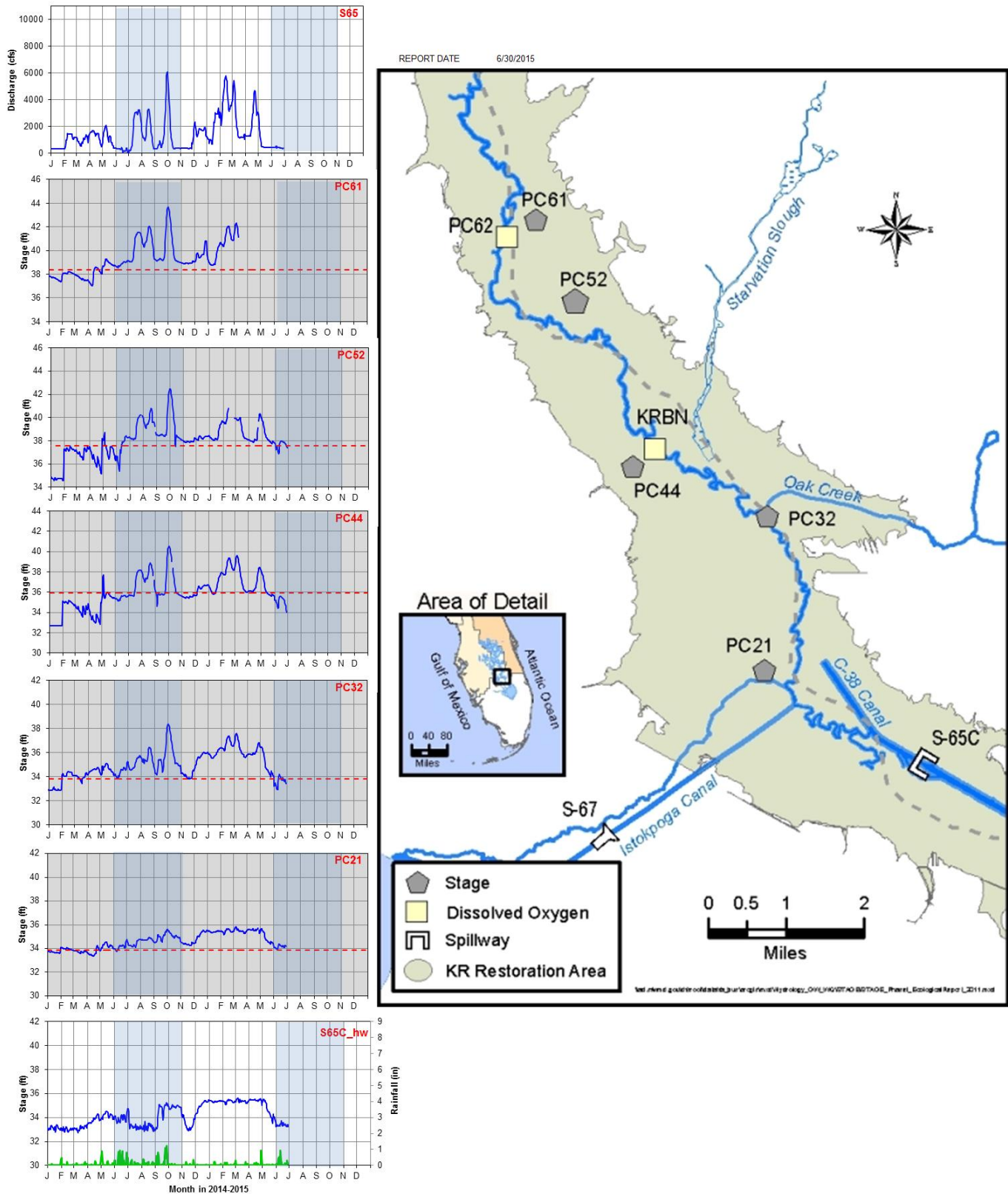


Figure 12. Discharge at S65, stages at five monitoring stations in the Phase I area of the Kissimmee River floodplain, and headwater stage at S65-C since January 1, 2013. The most recent data (~2 weeks) are provisional real-time data from SFWMD DualTrend; previous data are from SFWMD DB-HYDRO (validated). Dashed lines are ground elevations.



Figure 13. The Kissimmee Basin.

LAKE OKEECHOBEE

According to the USACE web site, Lake Okeechobee stage is at 12.20 feet NGVD for the period ending at midnight on June 29, 2015. This value is usually based on the use of four interior Lake stations (L001, L005, L006, and LZ40) and the following four perimeter stations (S-352, S-4, S-308, and S-133) but there was no value for LZ40. There was a net decrease in Lake stage of 0.22 feet over the past seven days. The Lake is now 0.53 feet lower than it was a month ago and 0.75 feet lower than it was a year ago (Figure 1). The Lake is in the Beneficial Use Operational Sub-band (Figure 2). The current stage is 1.17 feet below the historical average for this date and 0.03 feet below the LORS 2008 simulated average. According to RAINДАР, 0.98 inches of rain fell directly over the Lake during the past seven days. Similar or greater amounts fell in most of the surrounding watershed, especially north of the Lake (Figure 3).

Current Lake inflow is approximately 619 cfs consisting of flows as indicated below.

Structure	Flow cfs
S65E	233 (352 weekly average)
S154	0
S84	0
S71	115
S72	48
C5	0
S191	0
S133 PUMPS	0
S127 PUMPS	0
S129 PUMPS	0
S131 PUMPS	0
S135 PUMPS	0
Fisheating Creek	213
S2 Pumps	0
S3 Pumps	0
S4 Pumps	0

Outflows from the Lake consist of 3009 cfs exiting at S-351, S-352, and S-354 and 1 cfs exiting through S-77. There is no reported flow through S-308, and the S-308 and L8 are reporting backflows of 3 and 1 cfs, respectively. Corrected average weekly evapotranspiration was 4577 cfs, approximately 35% less than the value reported last week.

Change in elevation equivalents based on total weekly flows for major structures and for rainfall and evapotranspiration are presented in Figure 4.

Since the last official wading bird survey of the year conducted on June 11, 2015, wading birds utilizing the Lake may be in decline, which is consistent with the continuing recession and reduction in available foraging habitat (Figure 5).

The most recent MODIS satellite imagery (June 23) indicates low to moderately high potential bloom conditions have spread from the southwest and northwest nearshore areas to the north and southern nearshore areas and have moved offshore into the pelagic zone. Potential bloom conditions on the east side of the Lake appear to have dissipated (Figure 6).

Water Management Recommendations

The Lake has now receded a bit below the optimal Lake stage for this time of year. Future recommendations for the short term will depend in large measure on wet season rainfall patterns and amounts with the operational goal being to maintain a steady change in Lake stage not to exceed 0.5 feet per month. From an ecological perspective, this could be either a continuing recession or the beginning of the typical summer ascension, although the beginning of the typical summer ascension would be preferable.

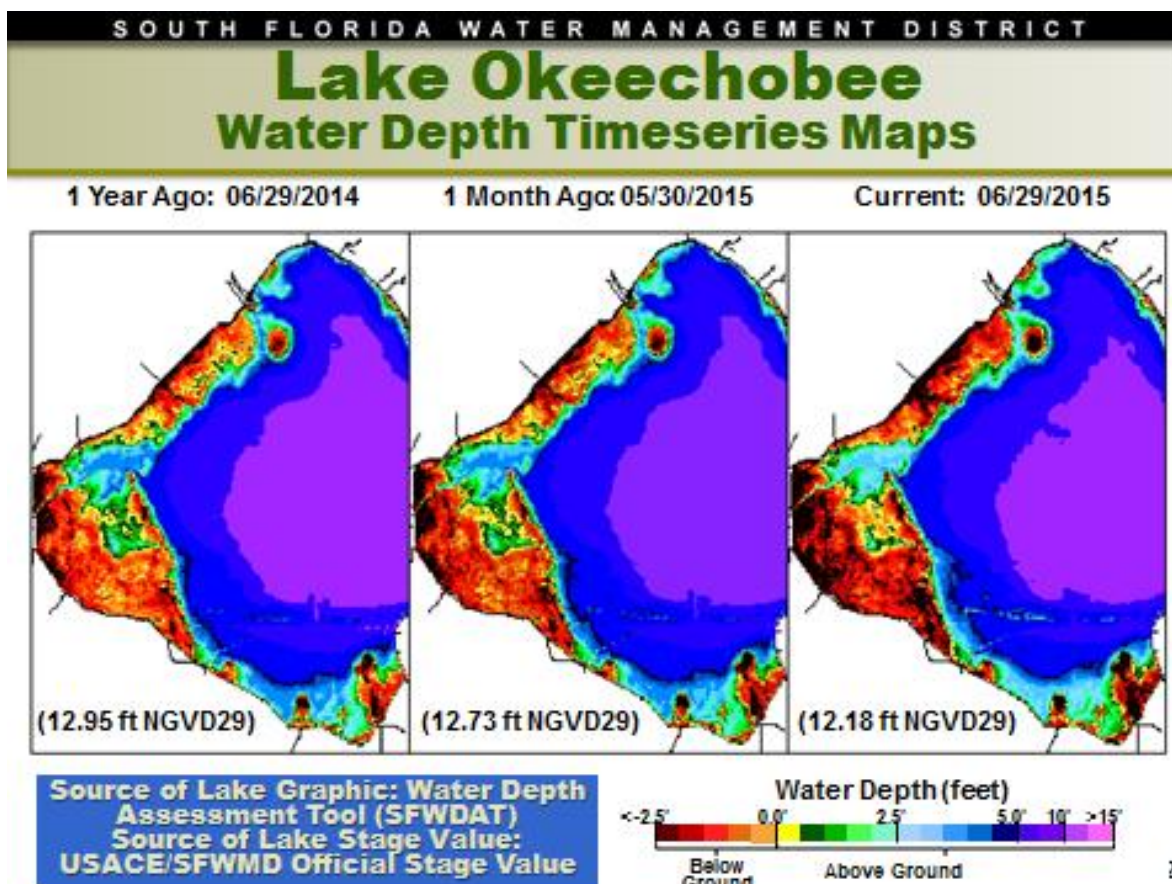


Figure 1

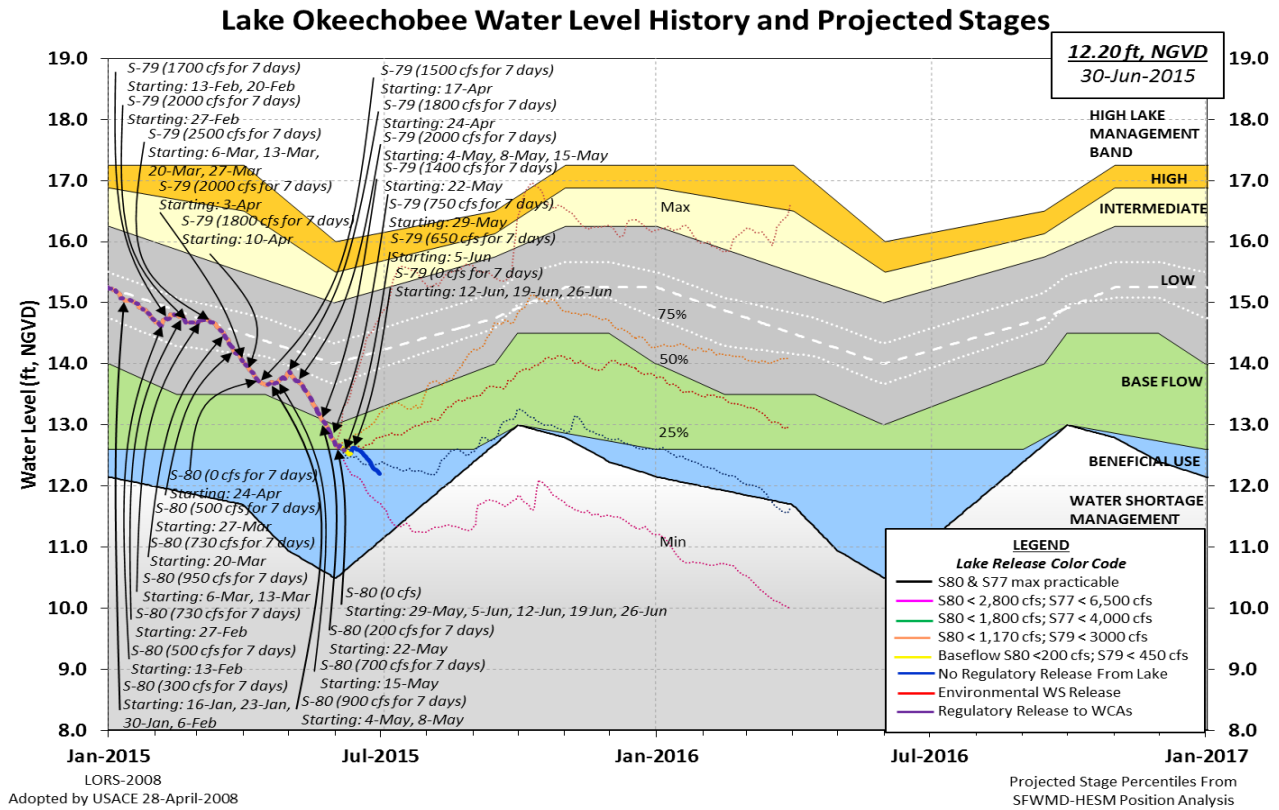


Figure 2

SFWM D PROVISIONAL RAINDAR 7-DAY RAINFALL ESTIMATES

FROM: 0830 EST, 06/23/2015 THROUGH: 0830 EST, 06/30/2015

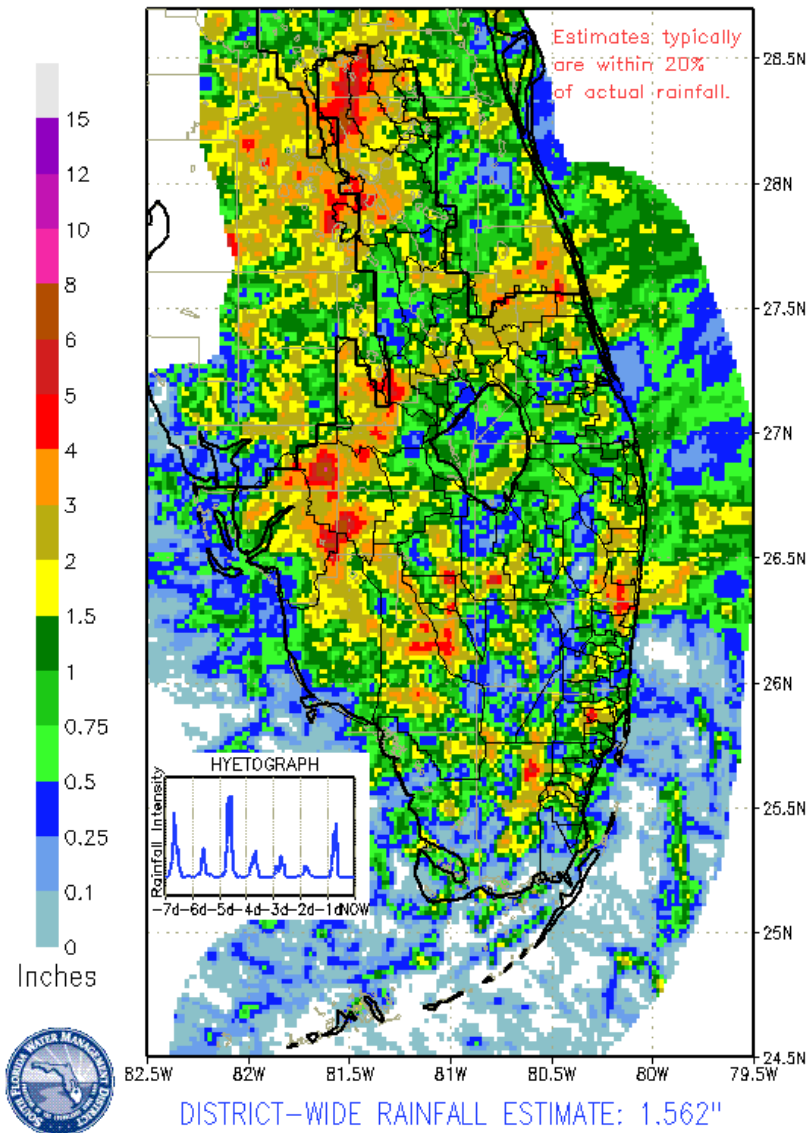


Figure 3

INFLOWS	FT OF CHANGE OVER PAST WEEK
S65E	0.009
S71 & 72	0.008
S84 & 84X	0.001
Fisheating Creek	0.008
Rainfall	0.082
OUTFLOWS	FT OF CHANGE OVER PAST WEEK
S77	0.000
S308	0.000
S351	0.057
S352	0.024
S354	0.034
ET	0.175

Figure 4

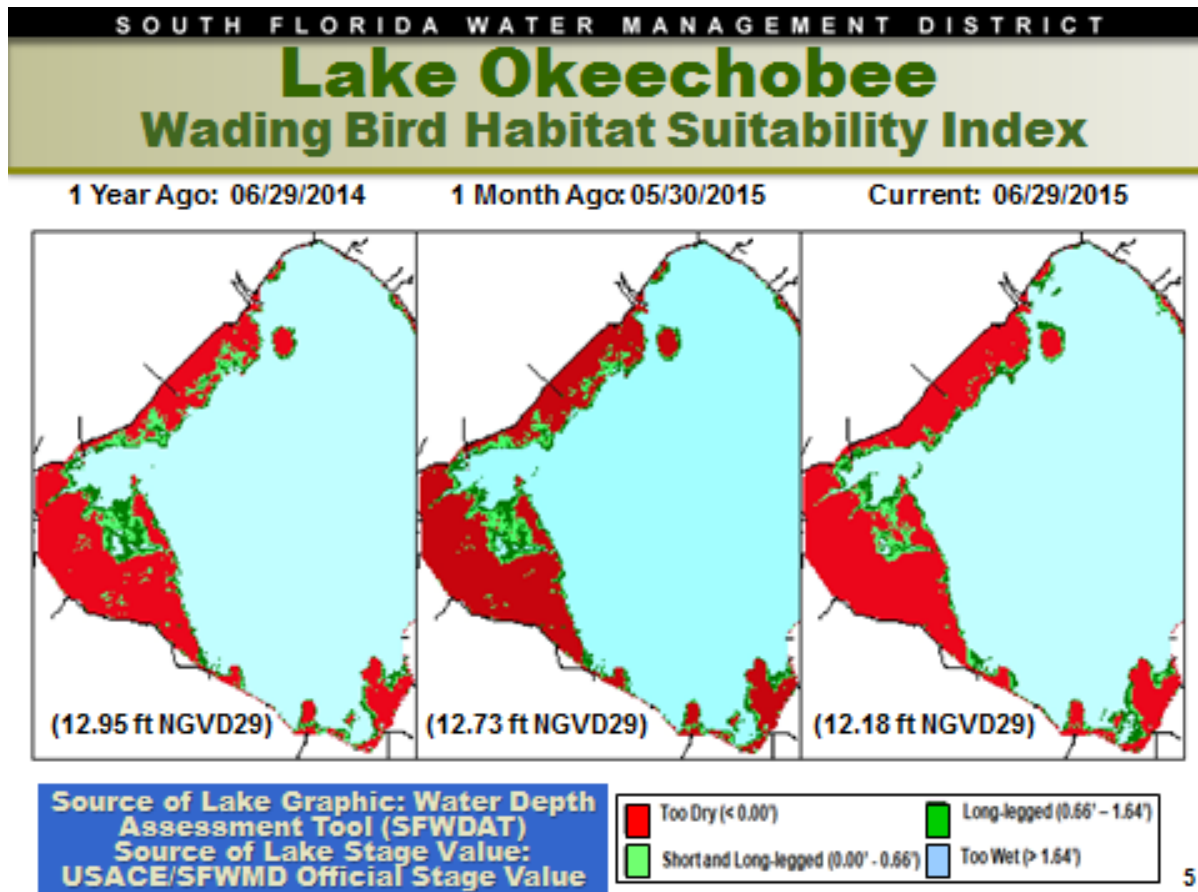


Figure 5

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Lake Okeechobee

Algal Blooms

Unvalidated Data

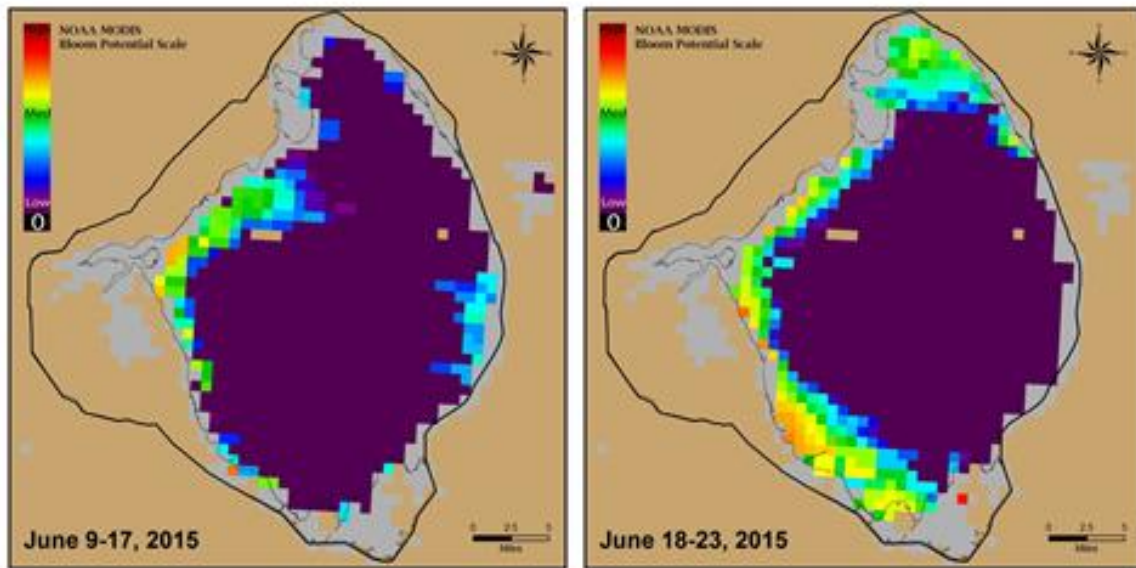


Figure 6

Lake Istokpoga

Lake Istokpoga stage is 38.19 feet NGVD today. The Lake has reached its annual low pool stage (38.25 feet NGVD). It is currently 0.07 feet below its regulation schedule (Figure 7). Average flows into the Lake from Arbuckle and Josephine creeks were 62 and 57 cfs. Average discharge from S-68 and S-68X this past week was 94 cfs, a significant decrease from the preceding week. According to RAINДАР, 0.92 inches of rain fell in the Lake Istokpoga watershed during the past seven days, up a bit over the previous seven days.

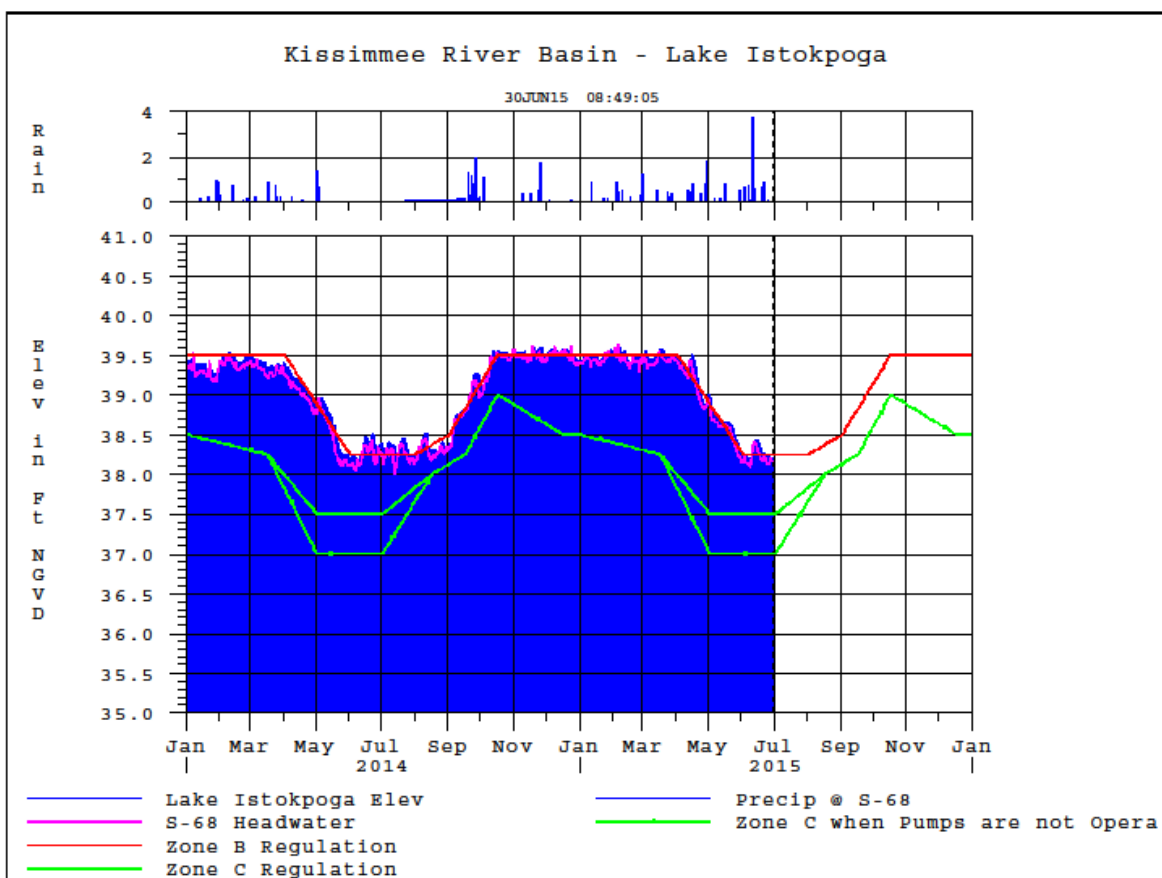


Figure 7

ESTUARIES

St. Lucie Estuary

Over the past week, provisional flows averaged 0 cfs at S-80, 0 cfs at S-308, 0 cfs at S-49 on C-24, 8 cfs at S-97 on C-23, and 88 cfs from Ten Mile Creek at the Gordy Road Structure. Average inflow from tidal basin tributaries is estimated to be 239 cfs (Figures 1 and 2). Total inflow averaged 335 cfs last week and 301 cfs over last month.

Over the past week, salinity remained about the same throughout the estuary (Table 1, Figures 3 and 4). The seven-day moving average salinity of the water column at the US1 Bridge is 21.2. Salinity conditions in the middle estuary are in the good range for the adult eastern oyster.

Table 1. Seven-day average salinity at three monitoring stations in the St. Lucie Estuary. Current average is in bold face type, previous average in parentheses. The envelope reflects the preferred salinity range for adult eastern oysters (*Crassostrea virginica*) in the middle estuary.

Sampling Site	Surface	Bottom	Envelope
HR1 (N. Fork)	~ 14.0 (NR)	~ 17.0 (16.6)	NA ¹
US1 Bridge	20.2 (19.2)	22.1 (20.9)	10.0-26.0
A1A Bridge	~ 27.0 (27.4)	~ 30.0 (30.6)	NA

¹Envelope not applicable

Caloosahatchee Estuary

During the past week, provisional flows averaged approximately 71 cfs at S-77, 164 cfs at S-78, and 858 cfs at S-79. Average inflow from tidal basin tributaries is estimated to be 1181 cfs (Figures 5 and 6). Total inflow averaged 2039 cfs last week and 1150 cfs over last month.

Over the past week in the estuary, average surface salinity increased upstream of Shell Point and remained about the same downstream (Table 2, Figures 7 and 8). The seven-day average salinity values are within the good range for oysters at Cape Coral, Shell Point, but in the fair range at Sanibel (Figure 9). The 30-day moving average surface salinity is 1.1 at Val I-75 and 4.8 at Ft. Myers. Salinity conditions at Val I-75 are in the good range for tape grass.

Table 2. Seven-day average salinity at six monitoring stations in the Caloosahatchee Estuary. Current average is in bold face type, previous average in parentheses. The envelope reflects the preferred salinity range for tape grass (*Vallisneria americana*) at Val I-75 and for adult eastern oysters (*Crassostrea virginica*) elsewhere.

Sampling Site	Surface	Bottom	Envelope
S-79 (Franklin Lock)	0.5 (0.3)	0.5 (0.3)	NA ¹
Val I75	1.0 (0.7)	1.8 (1.5*)	0.0-5.0 ²
Ft. Myers Yacht Basin	4.9 (4.1)	6.7 (6.7)	NA
Cape Coral	11.8 (10.7)	14.4 (14.1)	10.0-30.0
Shell Point	23.8 (24.6)	24.9 (26.1)	10.0-30.0
Sanibel	30.3 (>30.0)	31.6 (>30.0)	10.0-30.0

¹Envelope not applicable, ²Envelope is based on a 30-day average.

*Val I75 is temporarily offline due to bridge construction.

Salinity values are estimated using models developed for the site.

Salinity forecasts for the next several weeks were constructed for the following scenarios: a) no release (Figure 10), b) 100 cfs, c) 300 cfs, and d) 450 cfs pulse release. There are increased rainfall events expected over the next couple of weeks with a predicted tidal basin runoff of 757 cfs. The daily salinity at the Val I75 location is predicted to be 2.5, 2.2, 1.7 and 1.3 for the four cases, respectively by July 13, 2015. The 30-day moving average salinity is predicted to be 1.3, 1.2, 1.1 and 1.0, respectively.

Monitoring data collected by the River, Estuary and Coastal Observing Network of Sanibel-Captiva Conservation Foundation using continuous sensors are summarized in Table 3 as concentration ranges of Chlorophyll *a* and dissolved oxygen at Beautiful Island, Ft. Myers, and Shell Point in the Caloosahatchee Estuary.

Table 3. Weekly ranges of Chlorophyll *a* (a measure of algal biomass) and dissolved oxygen concentrations at three monitoring stations maintained by the Sanibel-Captiva Conservation Foundation.

	RECON Monitoring Stations		
	Beautiful Island	Ft. Myers	Shell Point
Chlorophyll <i>a</i> (µg/l)	4.9 – 10.9	2.0 – 7.8	1.2 – 5.7
Dissolved Oxygen (mg/l)	4.5 – 8.2	1.4 – 5.0	3.7 – 6.7

The Florida Fish and Wildlife Research Institute reported on June 26, 2015, that *Karenia brevis*, the Florida red tide organism, was detected in background concentrations this week in one sample collected alongshore of Lee County. Additional samples collected throughout southwest Florida did not contain *K. brevis*.

Water Management Recommendations

Lake Okeechobee's water level is within the Beneficial Use Operational Sub-band; the tributary hydrological conditions are Dry; and the seasonal and multi-seasonal forecasts are Normal and Wet, respectively. The Lake Okeechobee Regulation Schedule (LORS) prescribes no releases from either S-80 or S-79.

Currently, the USACE is releasing 0 cfs at S-80 and 0 cfs at S-77. Currently, there are no ecological benefits associated with additional releases from Lake Okeechobee. Considering the current Lake levels, and anticipated rainfall, Lake releases into the estuary, if any under the LORS guidance, should be made at a low level and in a pulsed pattern (Table 4) to mitigate potential stratification and phytoplankton accumulation in the water column. Recommended release rates are 0 cfs at S-80 and 450 cfs at S-79.

Table 4. Schedules for 7-day pulses at S-80 and S-79

7-day pulses at S-80									
Day	100 cfs	200 cfs	300 cfs	500 cfs	650 cfs	730 cfs	950 cfs	1100 cfs	1170 cfs
1	100	200	300	500	650	800	950	1200	1290
2	300	600	700	900	1100	1200	1400	1600	1800
3	150	300	500	800	900	1000	1200	1400	1500
4	100	200	300	600	800	800	1100	1200	1300
5	50	100	200	400	600	600	900	1000	1000
6	0	0	100	300	400	500	700	800	800
7	0	0	0	0	100	210	400	500	500
7-day pulses at S-79									
Day	1000 cfs	1200 cfs	1500 cfs	1700 cfs	2000 cfs	2300 cfs	2500 cfs	2900 cfs	3000 cfs
1	1500	1700	2000	2200	2500	2800	3000	3400	3500
2	1900	2100	2400	2600	3100	3500	3800	4200	4300
3	1600	1800	2100	2300	2600	3000	3300	3700	3800
4	900	1100	1400	1600	1900	2200	2400	2800	2900
5	700	900	1200	1400	1700	2000	2200	2600	2700
6	400	600	900	1100	1400	1700	1800	2300	2400
7	0	200	500	700	800	900	1000	1300	1400

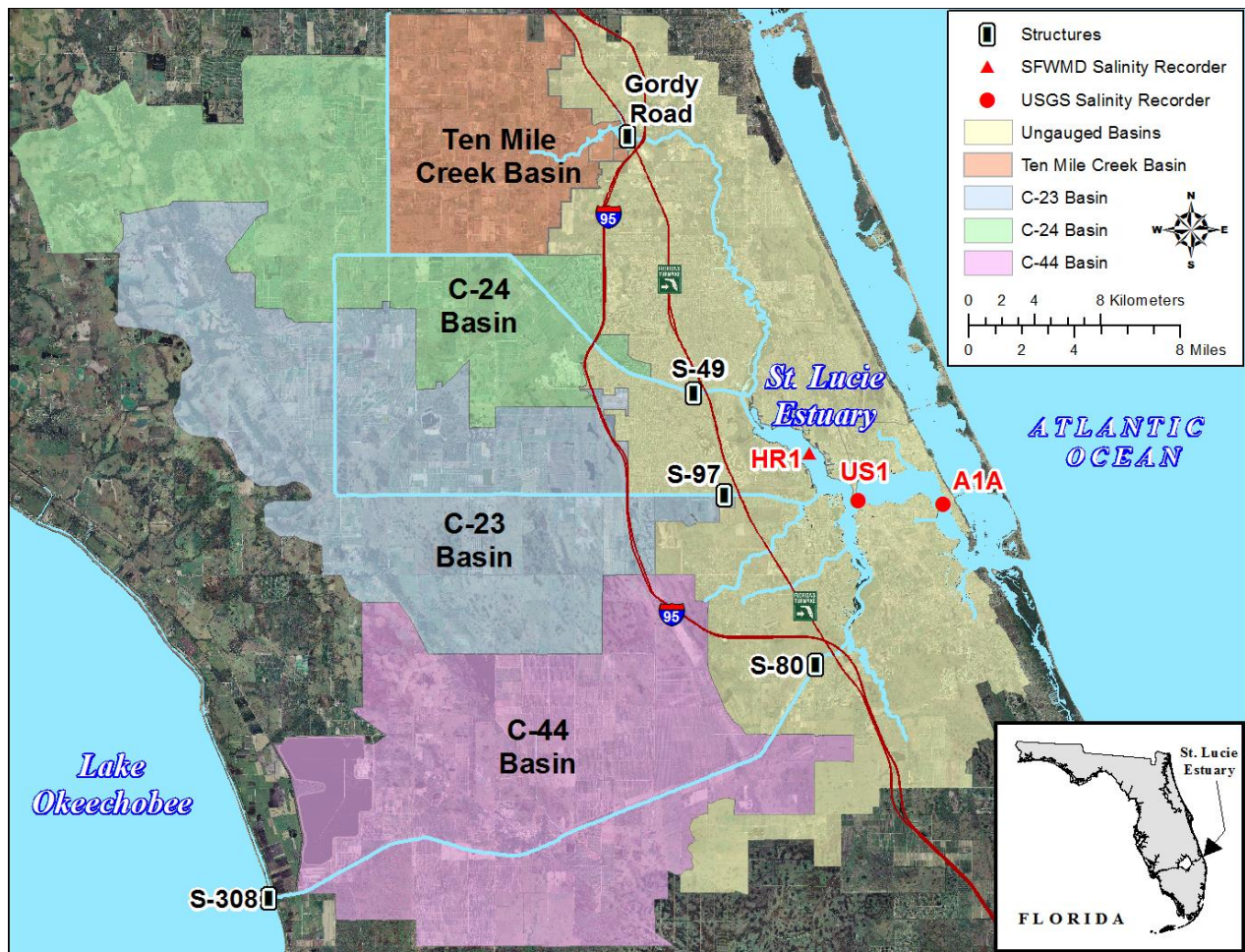


Figure 1. Basins, water control structures, and salinity monitoring for the St. Lucie Estuary.

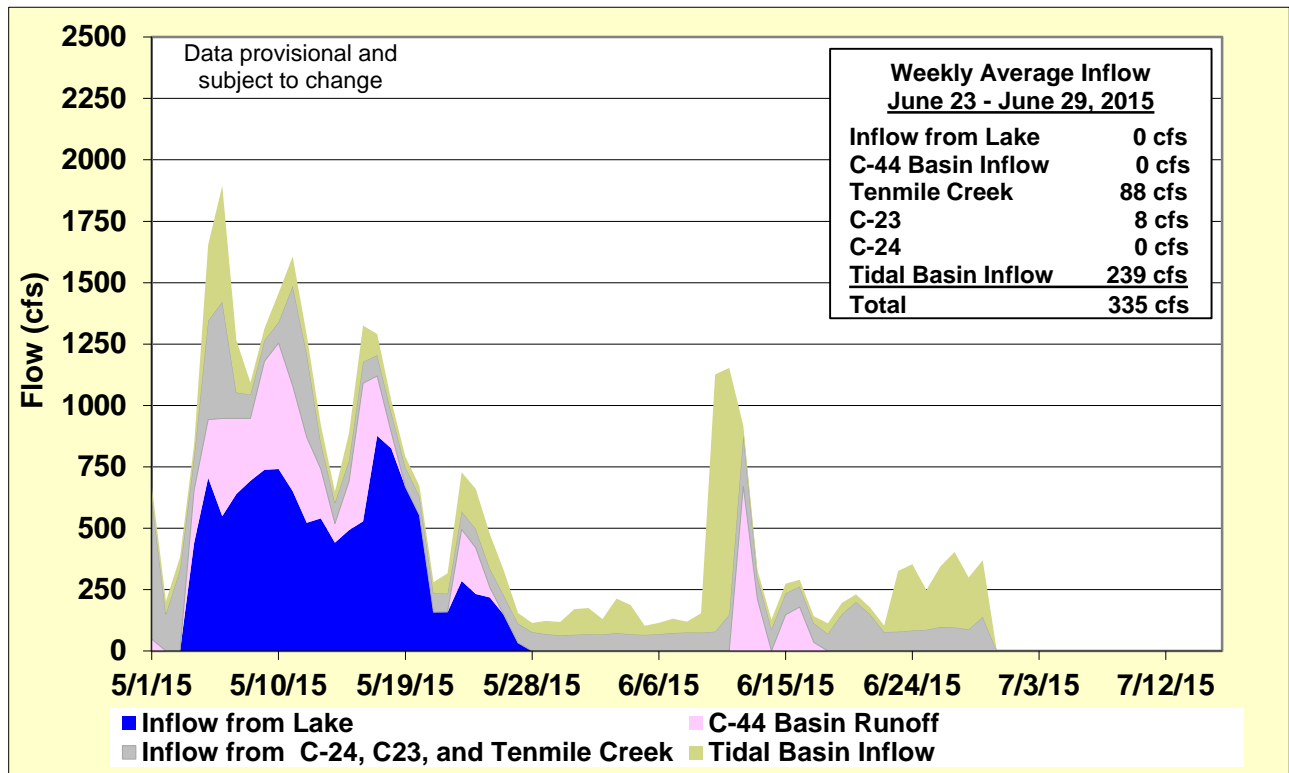


Figure 2. Estimated surface freshwater inflows from Lake Okeechobee and runoff from the C-44, C-23, C-24, Ten Mile Creek, and tidal basins into the St. Lucie Estuary.

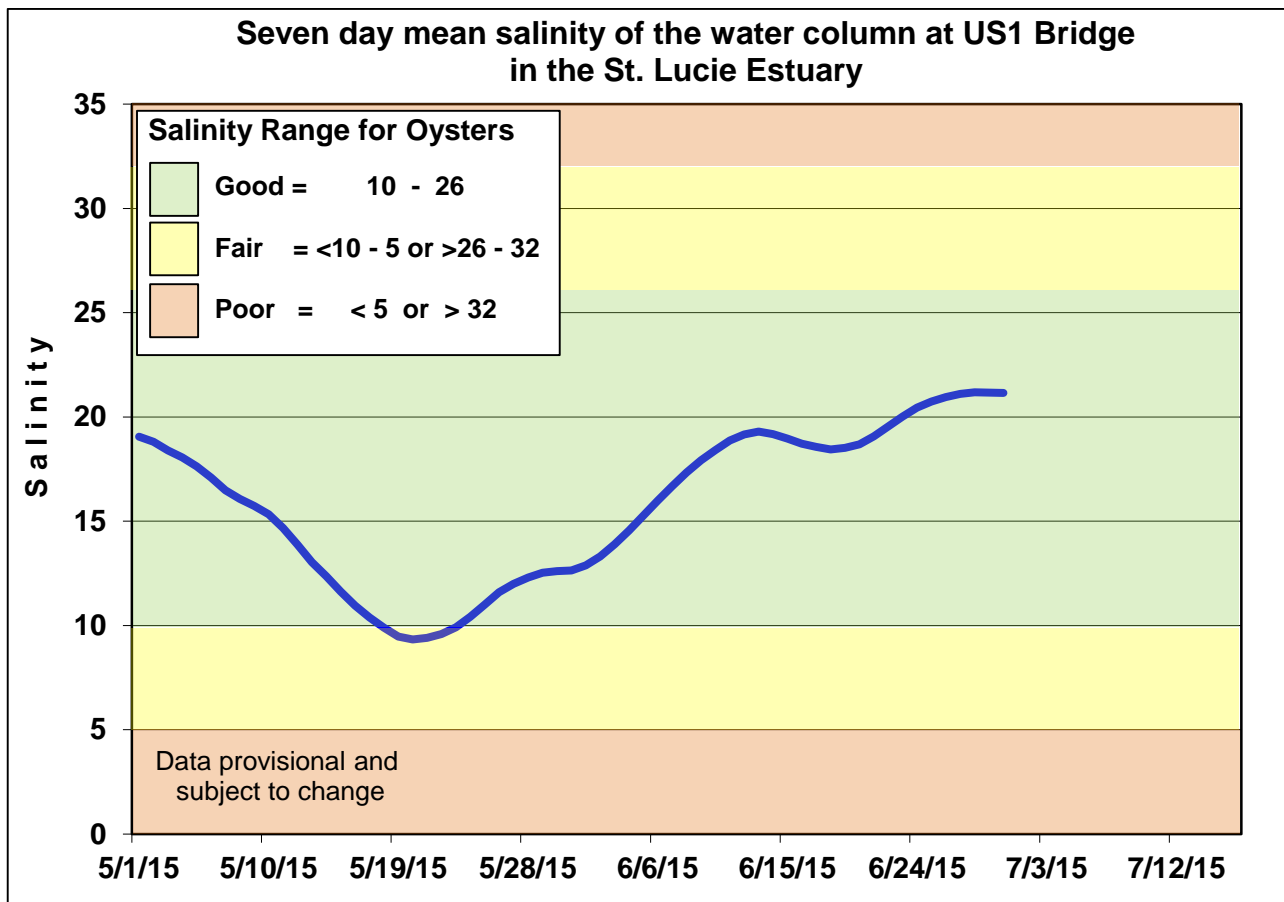


Figure 3. Seven-day mean salinity of the water column at the U.S. Highway 1 Bridge.

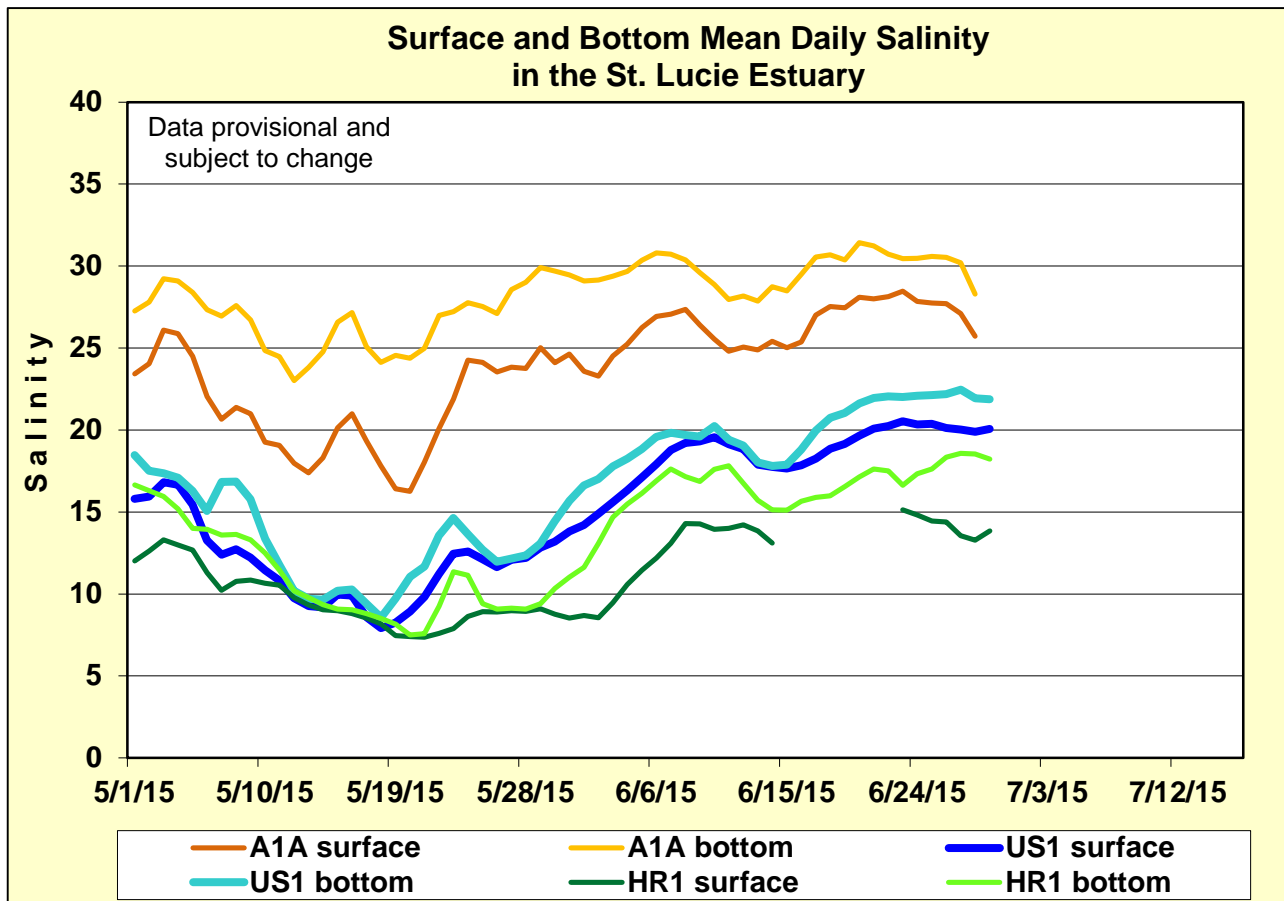


Figure 4. Daily mean salinity at the A1A, US1 and HR1 stations.

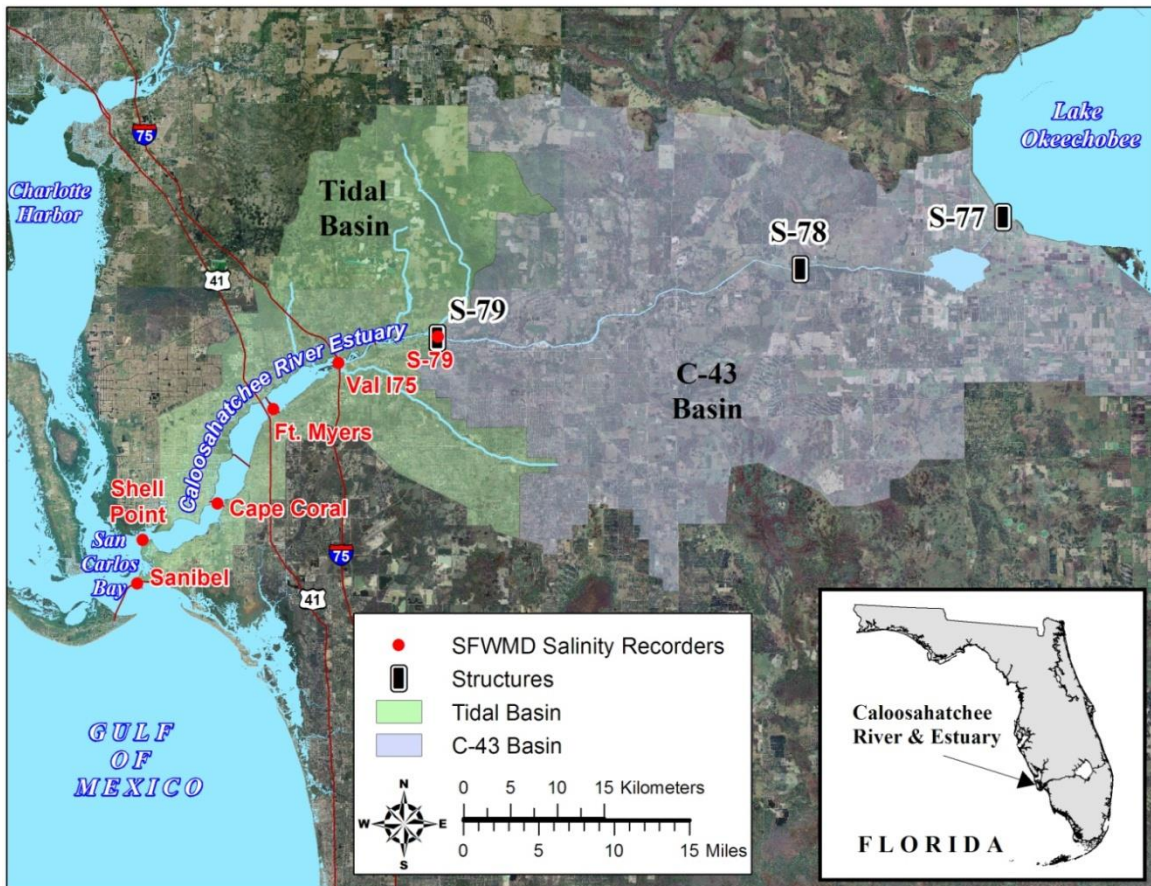


Figure 5. Basins, water control structures, and salinity monitoring for the Caloosahatchee Estuary.

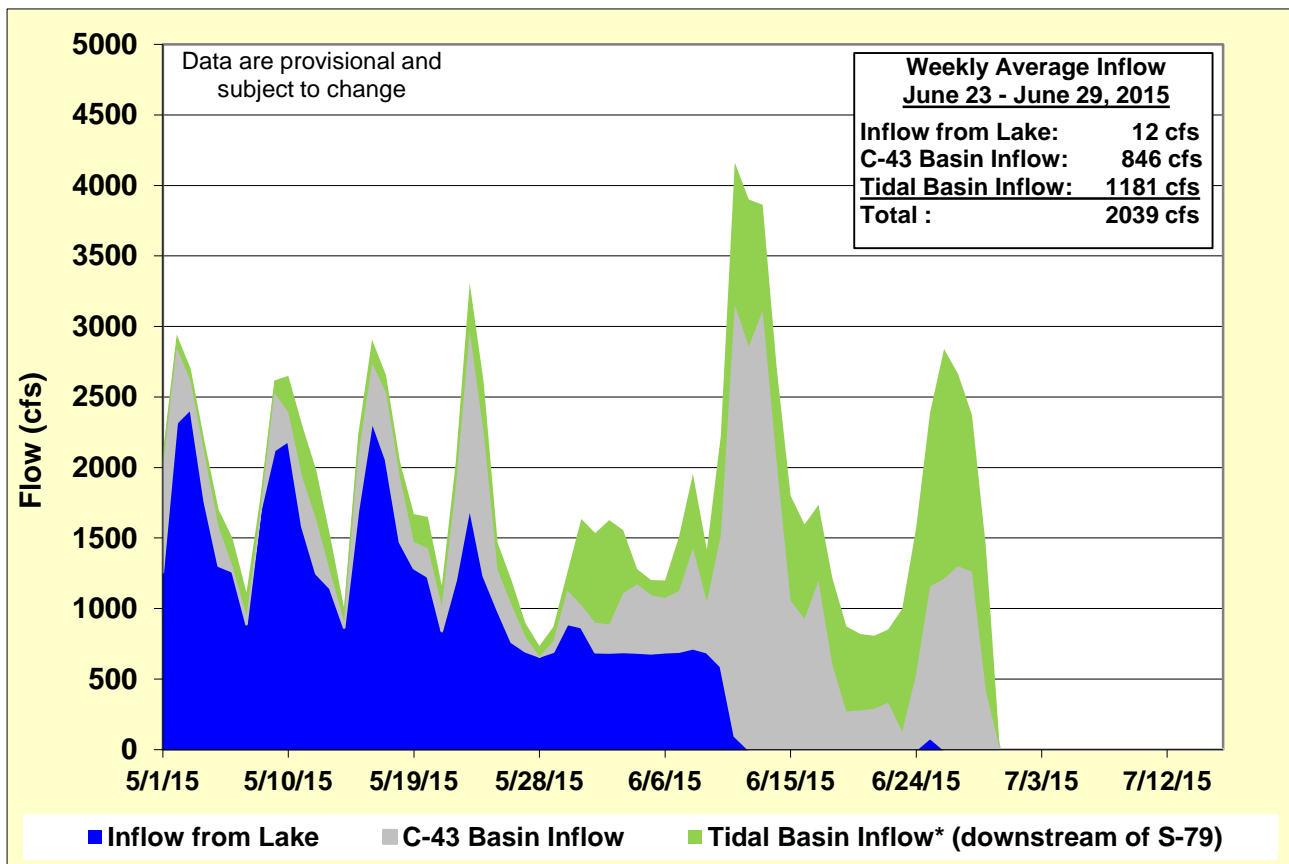


Figure 6. Surface freshwater inflows from Lake Okeechobee, runoff from the C-43 basin, and tributaries in the tidal basin into the Caloosahatchee River Estuary.

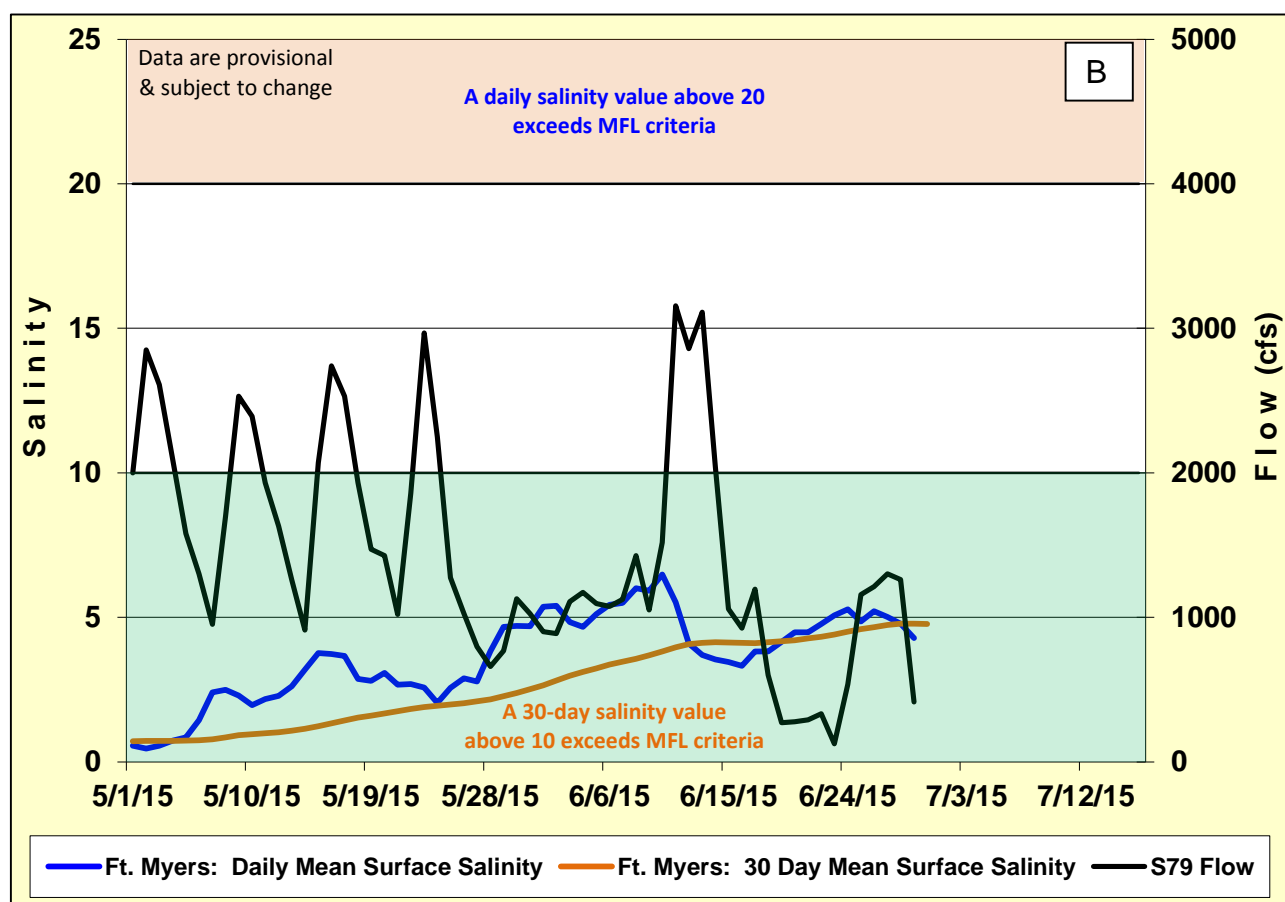
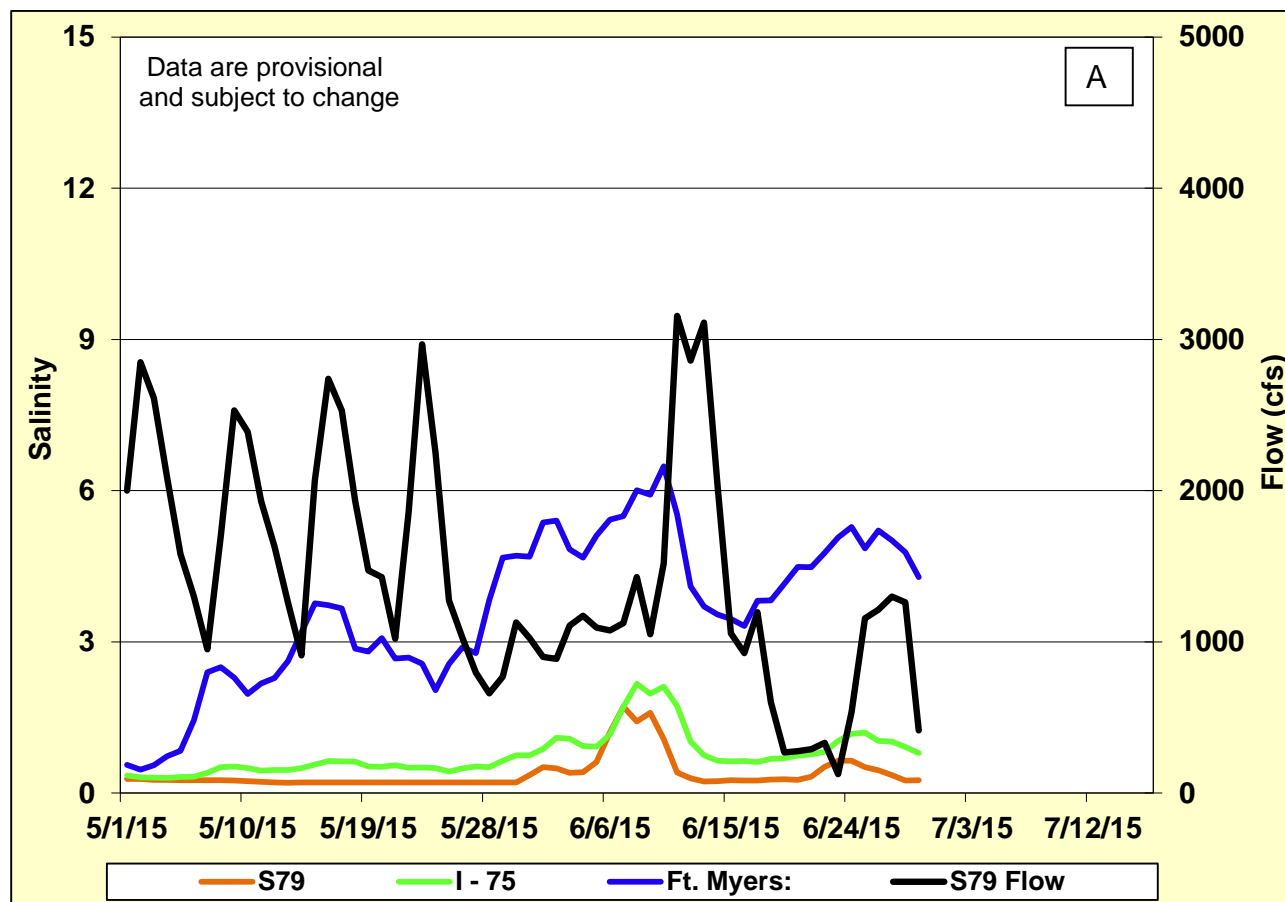


Figure 7. Daily mean flows at S-79 and salinity at upper estuary monitoring stations (A) and 30-day moving average salinity at Ft. Myers (B).

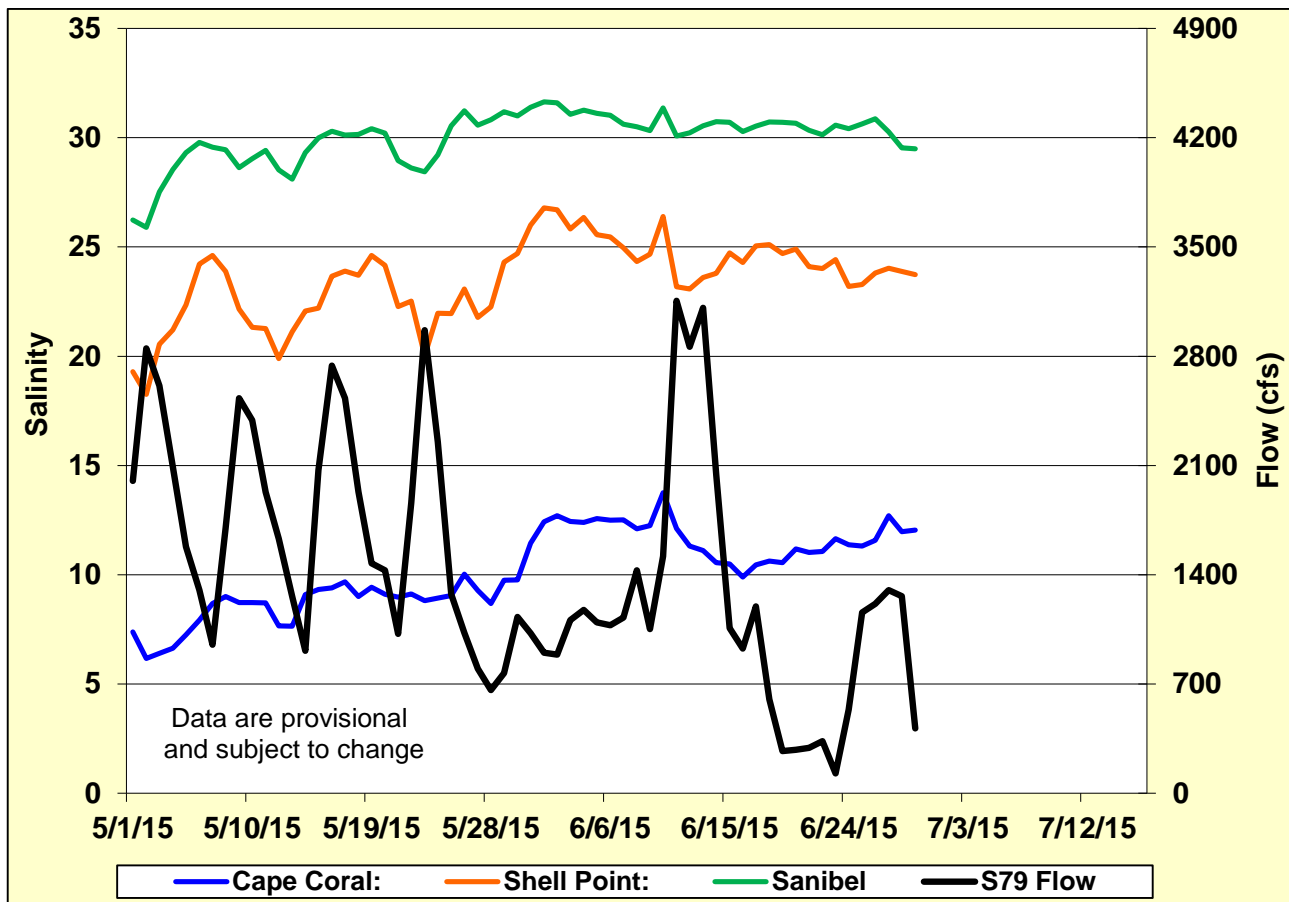


Figure 8. Daily mean flows at S-79 and salinity at lower estuary stations.

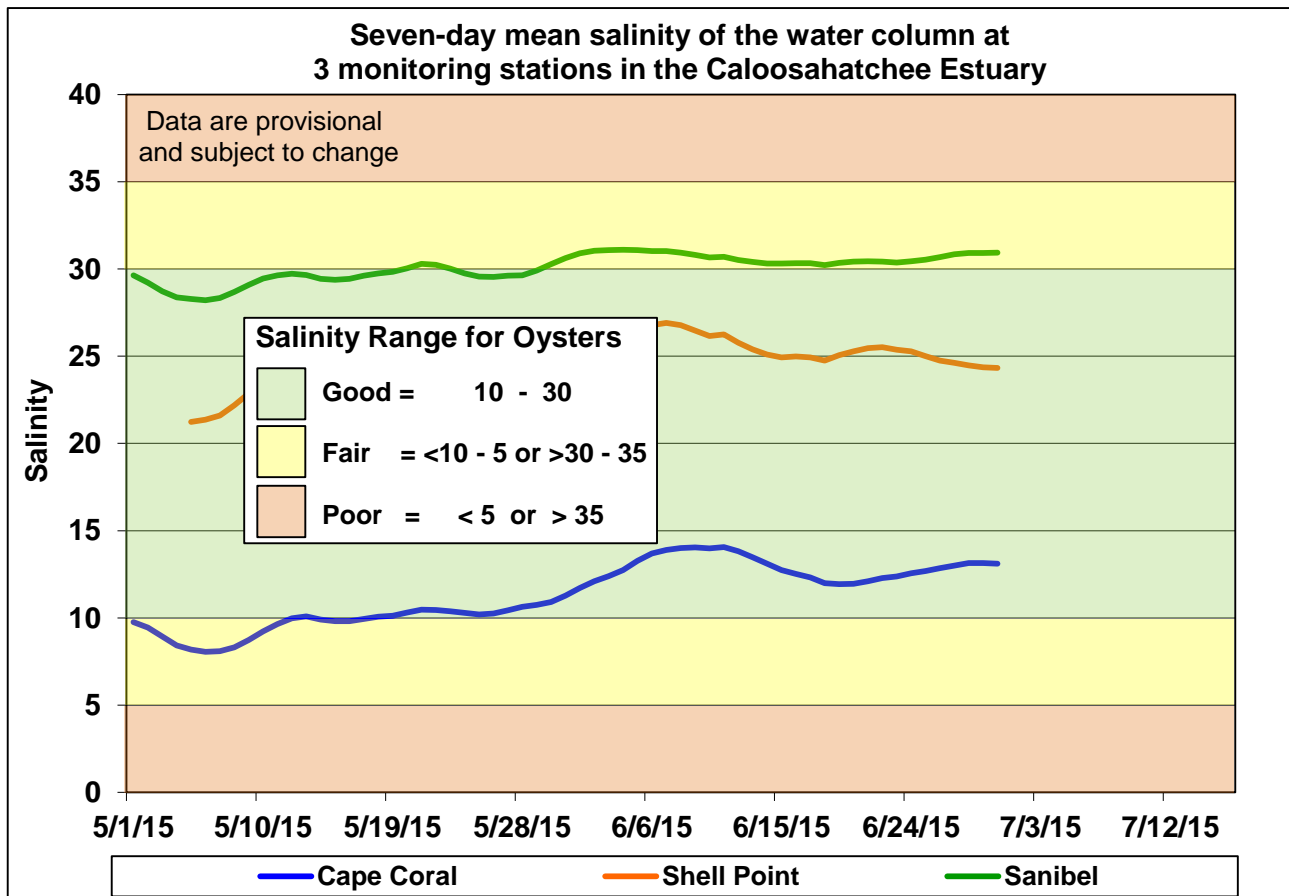


Figure 9. Seven-day mean salinity at Cape Coral Bridge, Shell Point and Sanibel Bridge monitoring stations.

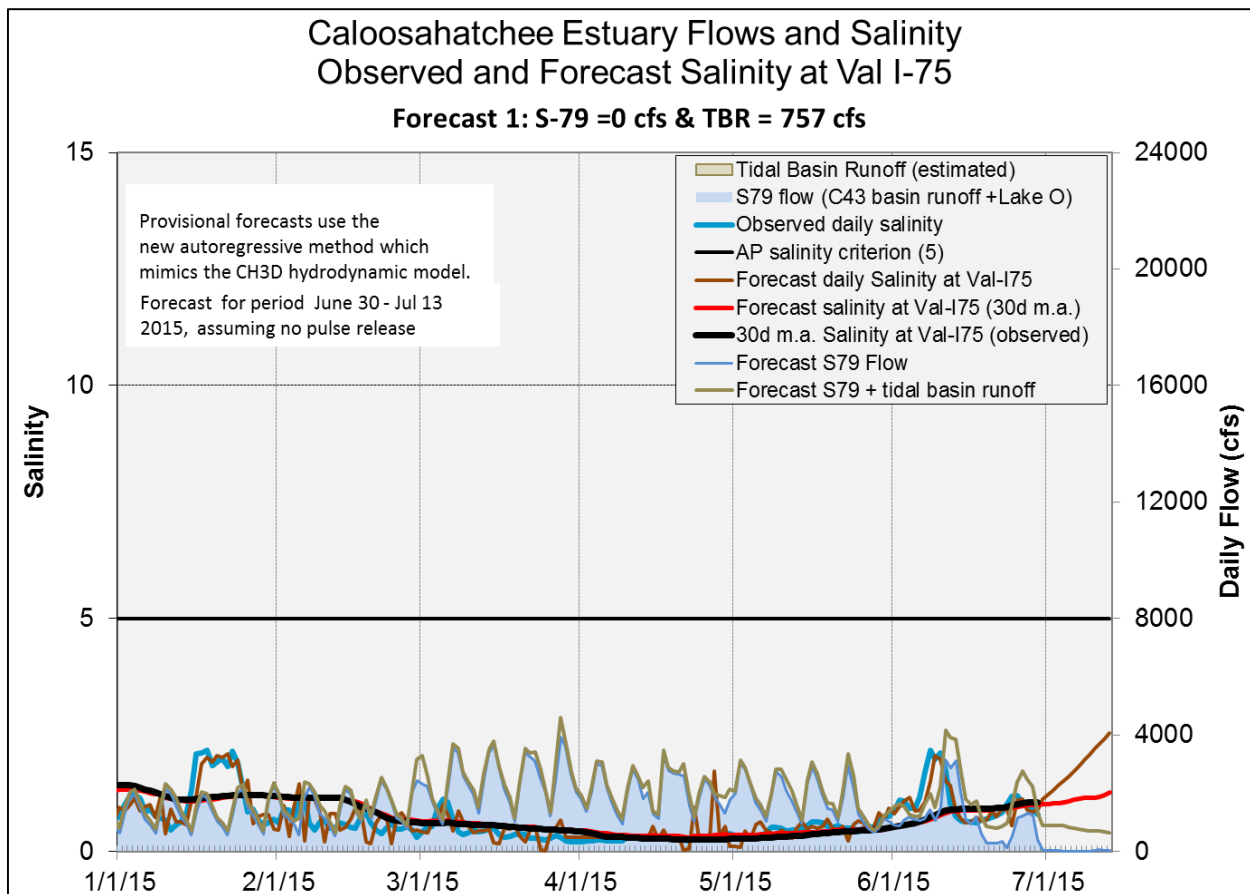
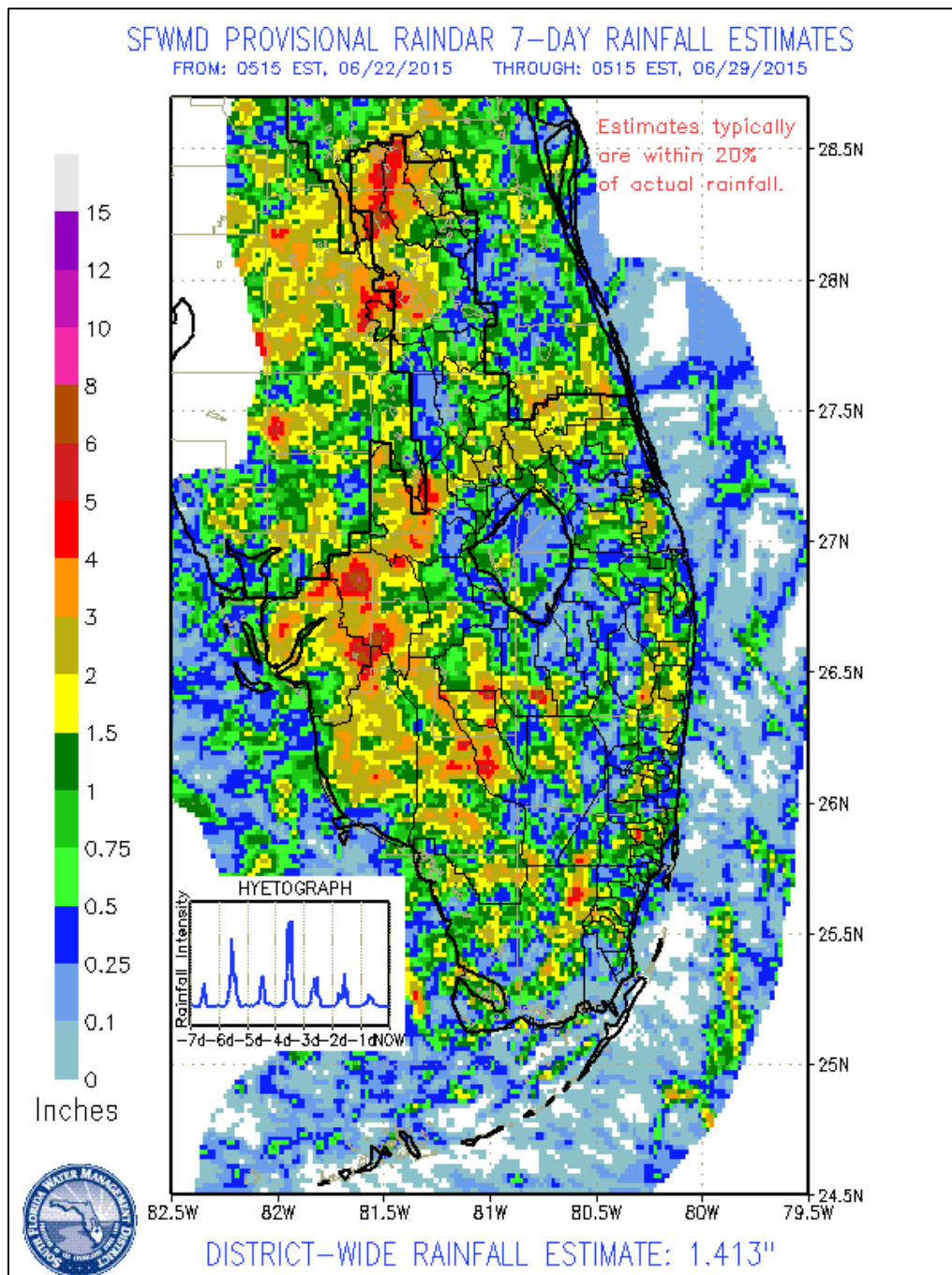


Figure 10. Two-Week Salinity Forecast for Caloosahatchee Val I-75 location assuming 0 cfs flow from S-79 and minor rainfall events within the watershed.

GREATER EVERGLADES

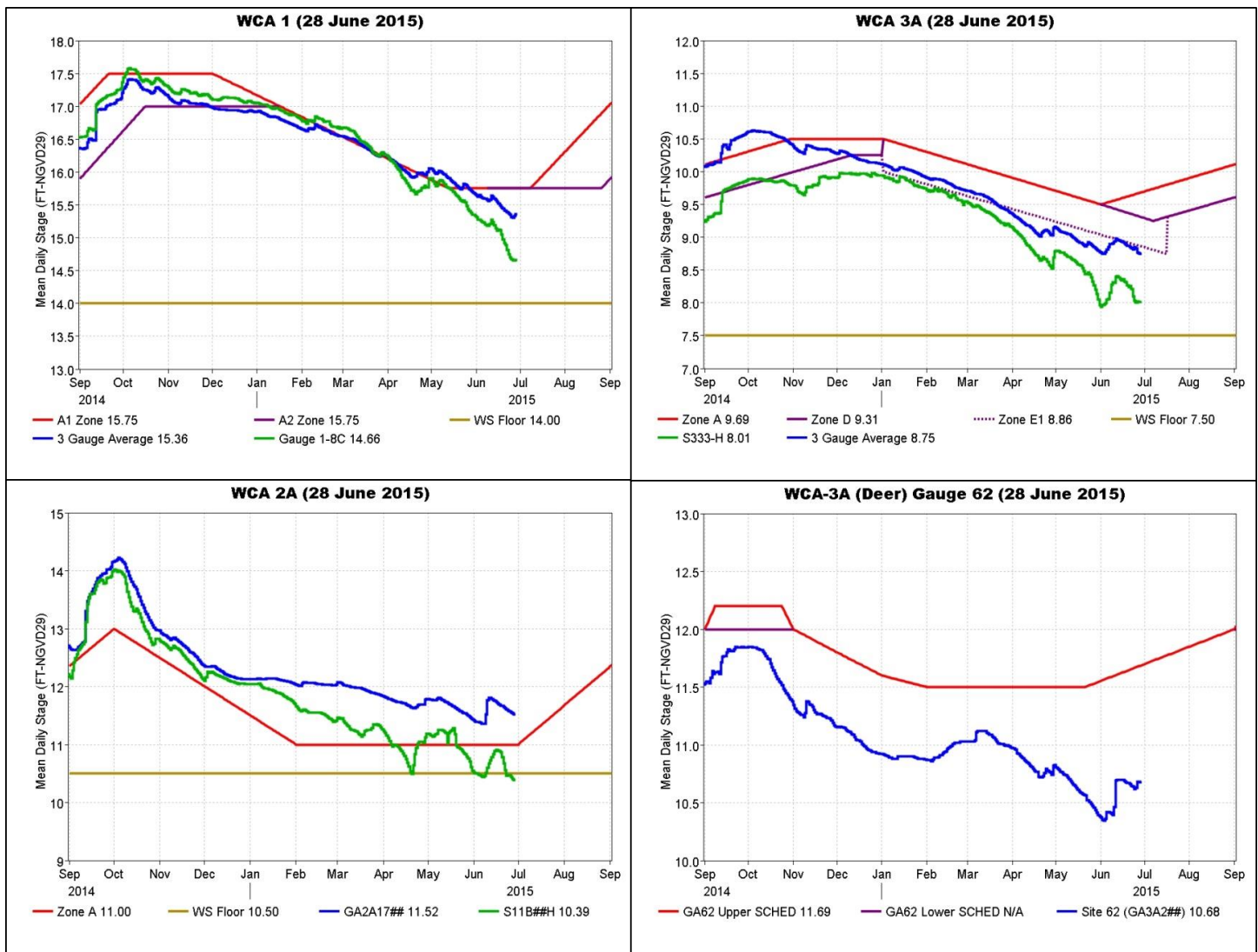
Rainfall was moderate with basin averages ranging from 0.61 inches to 1.19 inches. Stages decreased in most of the WCAs but rose by 0.56 feet in northeastern Everglades National Park (ENP) to slightly above ground. Pan evaporation was 1.79 inches, 20 percent above the 1.49-inch pre-project average.

Everglades Region	Rainfall (Inches)	Stage Change (feet)
WCA-1	0.79	-0.02
WCA-2A	0.74	-0.10
WCA-2B	0.61	-0.20
WCA-3A	1.19	-0.05
WCA-3B	0.99	0.08
ENP	1.02	0.56



Regulation Schedules

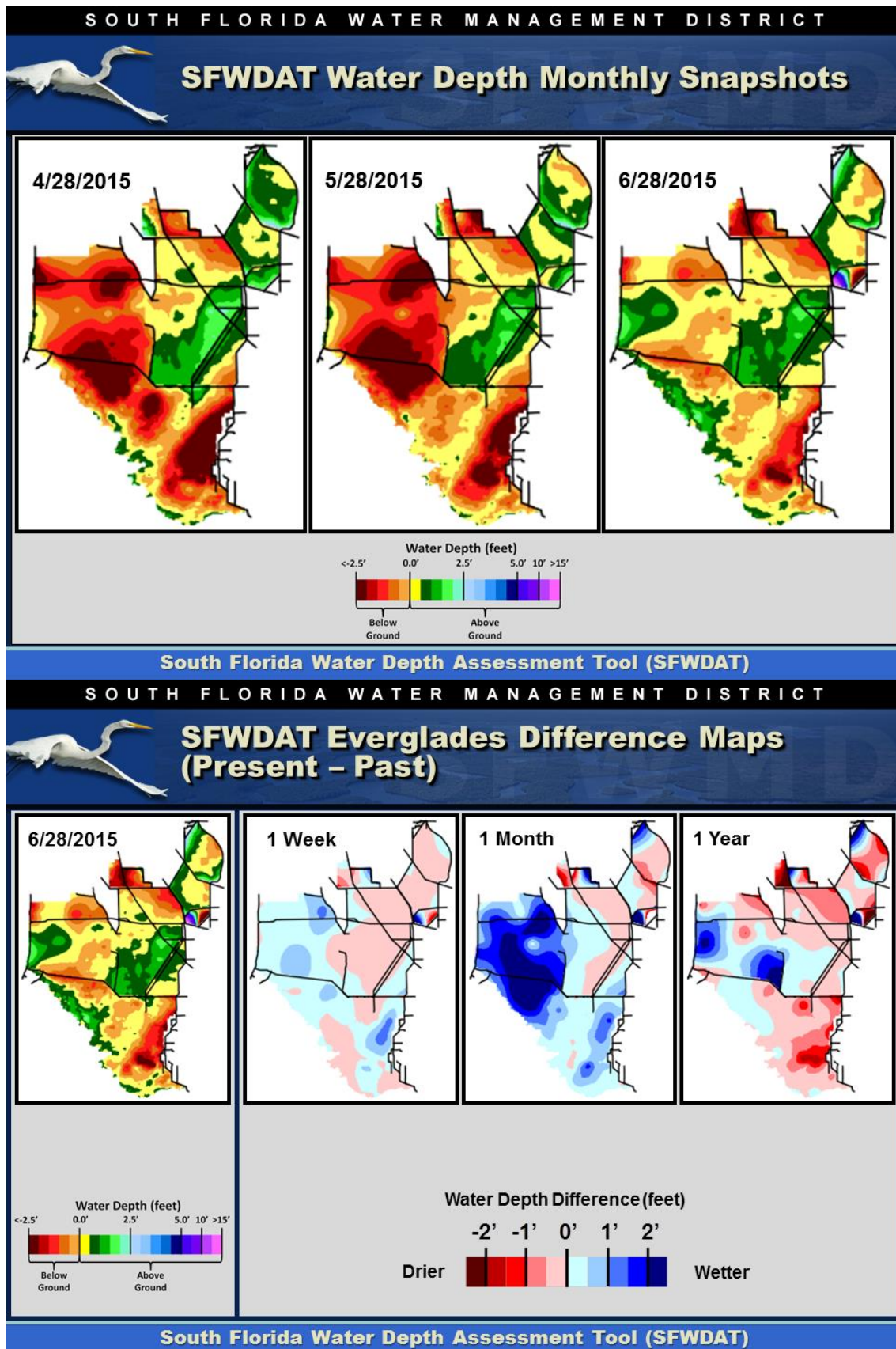
Stages fell slightly at gauges used for the regulation schedules. In WCA-1, the three gauge average in the wetlands decreased to 0.39 feet below regulation. The WCA-2A decreased to 0.52 feet above schedule. In WCA-3A, the three gauge average wetlands stage has declined to 0.11 feet under Zone E1. The water level at the northwestern WCA-3A gauge stage (gauge 62) decreased and is 1.01 feet below the upper regulation schedule.



Water Depths and Changes

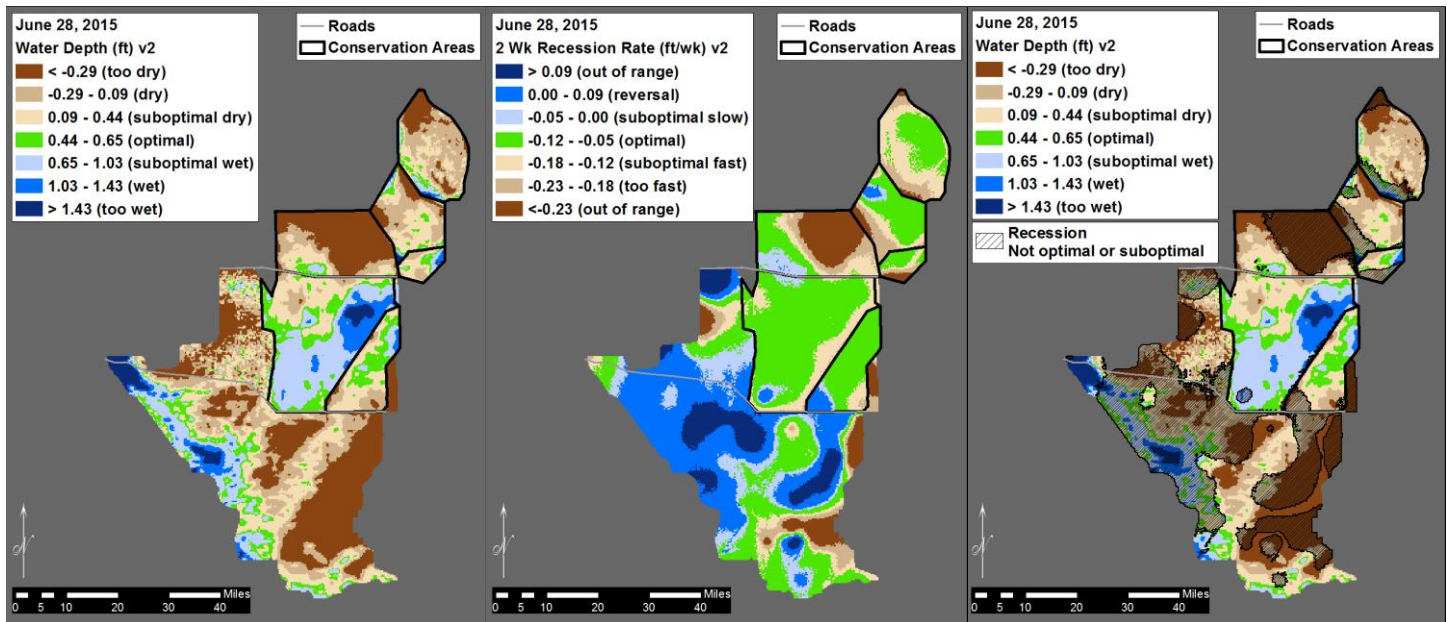
Normally by late June, water levels are significantly higher than in May. However, water depths are similar to or lower than those a month ago and two months ago. The lack of sufficient rainfall has produced relatively low water levels well into the wet season. Water depths at the monitored gauges range from -0.45 feet in northeastern WCA-3A to 1.18 feet in southern WCA-3A.

Stages are mixed relative to last week, last month, and a year ago. Compared to a week ago, Holey Land Wildlife Management Area, WCA-3B, and ENP are wetter. Compared to a month ago, western WCA-3A and WCA-2A, northern WCA-1, and WCA-3B and ENP have higher stages. Stage differences relative to a year ago are patchy and widely divergent.



Wading birds and endangered species

The wading bird surveys have finished for the year, and most breeding has been completed. However, foraging conditions remain good (unusual for late June).

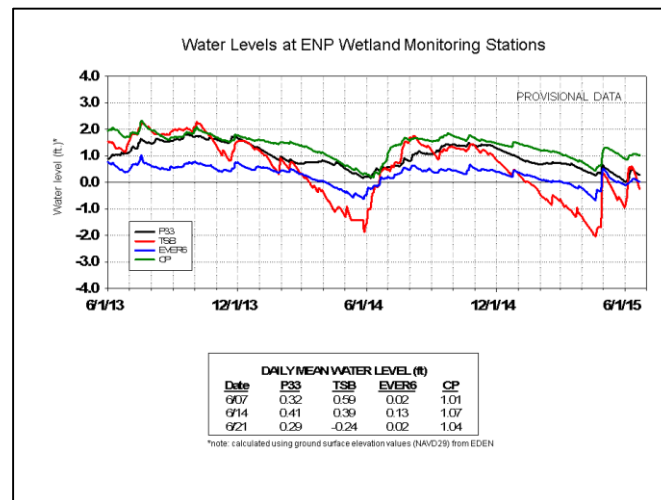


Cape Sable Seaside Sparrow

The single breeding pair in Subpopulation D has produced a third nest with eggs. This is the second year in a row that one pair has nested three times there.

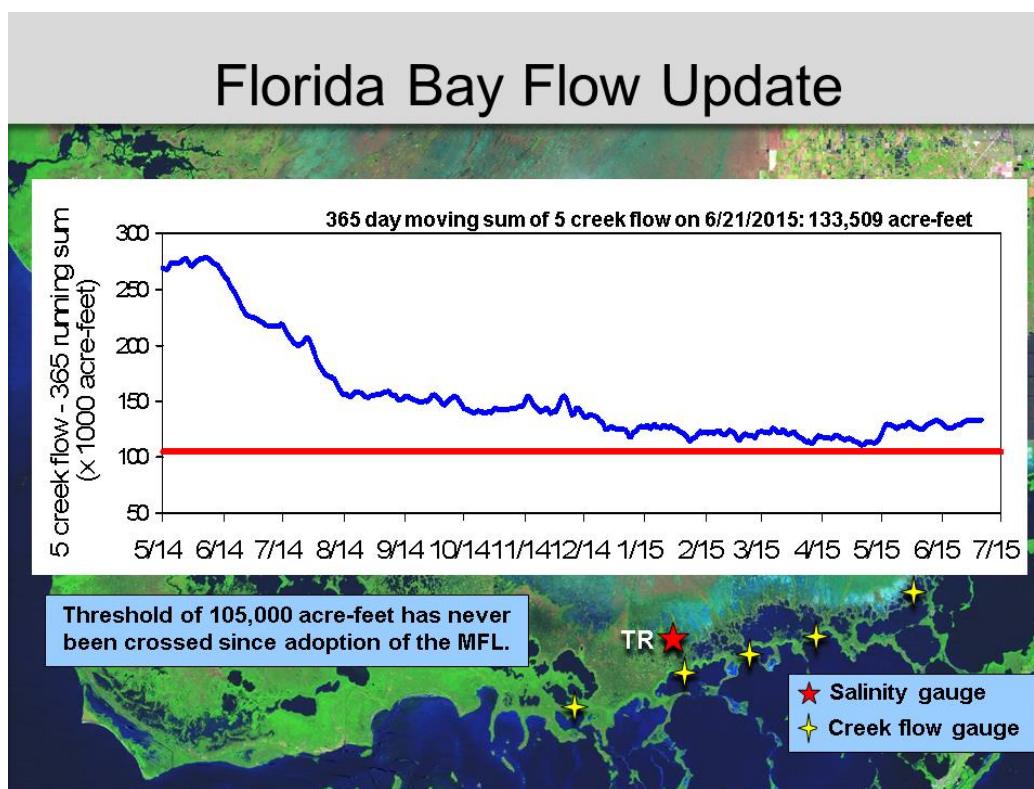
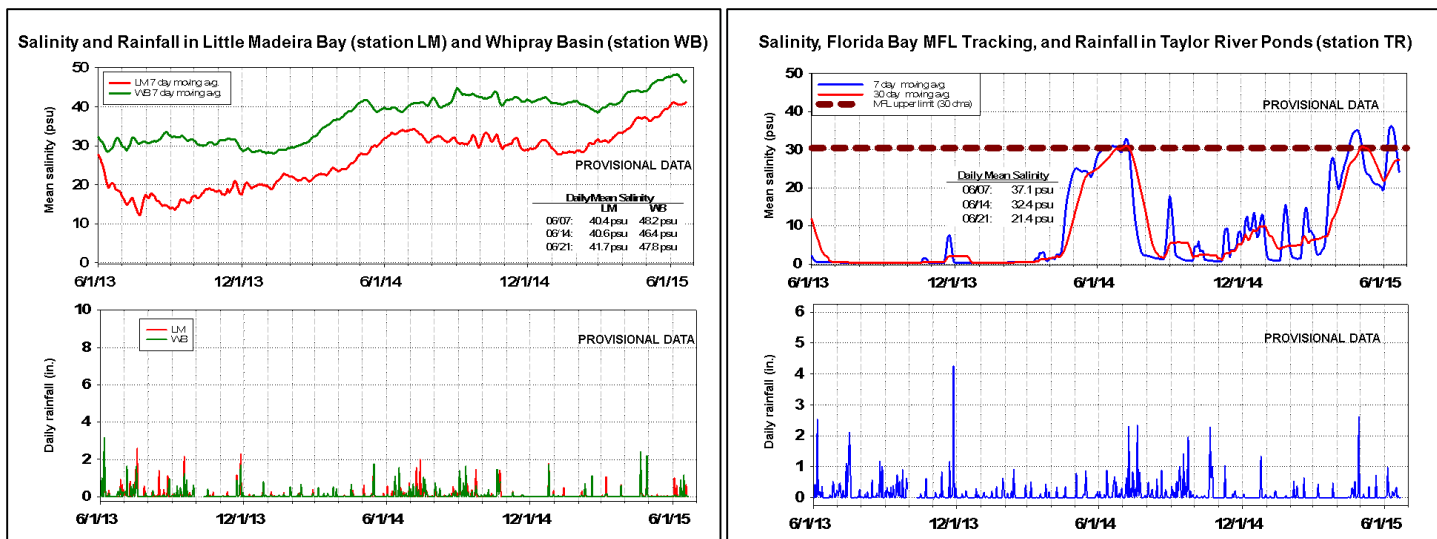
Everglades National Park (ENP) and Florida Bay

Water levels are falling again but remain slightly higher in most areas than a month ago. Compared to the long-term averages, which usually are rising at this time of year, water levels are 14 inches below average in northern Taylor Slough and four inches below average in southern Taylor Slough and the ENP panhandle. Saturday rainfall in northern Taylor Slough almost equaled evaporative recession for the week, but water levels are still below ground in Taylor Slough.



Salinities in Florida Bay remain elevated and are 10 to 23 psu above average for this time of year. The Florida Bay nearshore embayments are still hypersaline at 40 psu or higher. The Taylor Slough (TR) station experienced the largest increase in salinity (likely from upstream flows at the shoreline), raising the daily average salinity to 29.7 psu. Salinities at all Florida Bay stations increased at the time of year that salinities are expected to be falling. The 30-day moving average at TR rose to 27.7 psu.

The 365-day running sum of the cumulative flow from five creeks feeding Florida Bay has decreased slightly to 129,700 acre-feet.



Water Management Recommendations:

- We recommend targeting ascension rates of up to 0.10 feet/week for the wet season to meet the end of wet season stage targets for environmental needs (prey species support, peat and plant community needs) without harming apple snail production.
- We continue to recommend releases into northeastern WCA-3A while conditions are very dry. Once water levels rise above ground, additional releases should no longer be needed.
- To protect the breeding Cape Sable Seaside Sparrows in Subpopulation A, S-12A and S-12B should remain closed until all breeding is complete. The single breeding pair in Subpopulation D has produced a third nest with eggs.

Site-specific recommendations appear in the summary table below. The recommendations include revised targets for the wet season given the current dry condition. The red text represents new or modified information or recommendations.

Summary of Everglades Recommendations, June 30, 2015 (SFWMD) (red is new text)				
Area	Current Condition	Cause(s)	Recommendation	Reasons
WCA-1	Stages changed -0.08' to +0.09'	Rainfall, ET, management	Limit ascension rates to <0.10 ft/wk.	Promote native habitat and maintain wetland plant communities. Support ongoing wading bird foraging.
WCA-2A	Stage decreased -0.10'	Rainfall, ET, management	Limit ascension rates to <0.10 ft/wk.	Promote native habitat and maintain wetland plant communities. Provide foraging habitat for wading birds.
WCA-2B	Stages decreased -0.07' to -0.32'; gauge 99 is -0.27' below ground	Rainfall, ET, management	Limit ascension rates to <0.10 ft/wk.	High stages preclude wading bird use, but provide good habitat for ducks.
WCA-3A NE	Stage decreased -0.11'; gauge 63 is -0.45' below ground	Rainfall, ET, management	Releases into far NE 3A are strongly recommended to protect peat and wetland ecosystems until water levels are above ground again. Average water stage of gauges 62 and 63 should remain under 11.60 feet and target 0.10 ft/wk ascension rate.	Promote native habitat and maintain wetland plant communities. Continue to provide critical foraging habitat for wading birds, large number of which are nesting on the ground and are particularly sensitive to increases in water levels.
WCA-3A NW	Stage increased +0.03'	Rainfall, ET, management	Releases into far NW 3A are strongly recommended to protect peat and wetland ecosystems until water levels are above ground again. Average water stage of gauges 62 and 63 should remain under 11.60 feet and target 0.10 ft/wk ascension rate.	Promote native habitat, maintain wetland plant communities, protect terrestrial wildlife and prevent peat fire and benefit apple snail reproduction.
Central WCA-3A S	Stage decreased -0.08'	Rainfall, ET, management	Target 3-gauge-average ascension rates of 0.10'/wk through 7/15, 0.05'/wk from 7/16-8/15; 0.07'/wk from 8/16-10/30.	Promote native habitat and maintain wetland plant communities. Provide foraging habitat for wading birds and apple snail reproduction.
Southern WCA-3A S	Stage decreased -0.06'	Rainfall, ET, management	Target 3-gauge-average ascension rates of 0.10'/wk through 7/15, 0.05'/wk from 7/16-8/15; 0.07'/wk from 8/16-10/30.	Promote native habitat and maintain wetland plant communities. Provide foraging habitat for wading birds and apple snail reproduction.
WCA-3B	Stages changed -0.04' to +0.30'	Rainfall, ET, management	Target ascension rates of 0.10'/wk.	Promote native habitat and maintain wetland plant communities. Provide foraging habitat for wading birds.
ENP-SRS	Stage rose 0.56' to +0.04' above ground.	ET, rainfall, topography, management	Discharges to the Park should be made in accordance with the E RTP rainfall plan. Water deliveries to Shark Slough should be made through S-333, then through S-12D and S-12C.	Promote native habitat and maintain wetland plant communities.
ENP-CSSS habitats	Nesting continues. Some nest depredation is occurring.	Rainfall, ET, management	Follow E RTP schedule closures and closure plan for Frog Pond and Aerojet structures, and continue to monitor trigger levels. Manage 332 B, C, and D impoundments to avoid exacerbating above ground level water levels in adjoining marsh areas with sparrow breeding. Extend gate closures for S-12A and S-12B until end of nesting.	Provide habitat and adequate nesting conditions for CSSS.
ENP-Wetlands	Water levels changed by less than 0.5' except in the northwest which had greater increases.	Rain, ET, inflows	Move water southward as possible	Wetlands have rehydrated and low flows continue into Florida Bay
Taylor Slough	Decreasing. 4-14 inches below average.	Rain, ET, inflows	Move water southward as possible	Provide freshwater buffer for ecosystems and freshen saline conditions downstream
FB- Salinity	Still 10-23 psu above average	Rain, ET, inflows, wind.	Move water southward as possible	Southward flows are still needed to reverse/slow salinity increases